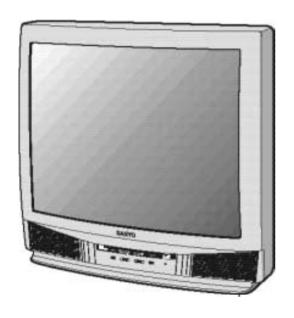


FILE NO.

SERVICE MANUAL

Remote Control Color Television

DS31590 (U.S.A.) ORIGINAL VERSION



Chassis No. 31590-00

NOTE: Match the Chassis No. on the unit's back cover with the Chassis No. in the Service Manual.

> If the Original Version Service Manual Chassis No. does not match the unit's, additional Service Literature is required. You must refer to "Notices" to the Original Service Manual prior to servicing the unit.

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Specifications

Power Rating 120V, 60Hz
89W (Avg), 2.5A (Max)
Antenna Input Impedance 75Ω
UHF/VHF/CATV
Receiving Channel 2 - 13 (VHF),
14 - 69 (UHF),
01, 14-94, 95-125 (CATV)
Remote Ready 38 Key Remote Control
Sound Output 1.0 W/CH
Intermediate Frequency
Picture IF Carrier 45.75MHz
Sound IF Carrier 41.25MHz
Color Sub Carrier 42.17MHz
Picture Tube M78JUA068X78, A78LKU30X12
Semiconductors
Integrated Circuits10
Transistors
Except within Tuner and RC Pre-Amp.
Cabinet Dimensions
Width 762mm
Height 707mm
Depth 539mm

SAFETY INSTRUCTIONS

SAFETY PRECAUTIONS

WARNING: The chassis of this receiver has a floating ground with the potential of one half the AC line voltage in respect to earth ground. Service should not be attempted by anyone not familiar with the precautions necessary when working on this type of equipment.

The following precautions must be observed:

- An isolation transformer must be connected in the power line between the receiver and the AC line before any service is performed on the receiver.
- Comply with all caution and safety-related notes provided on the side of the cabinet, inside the cabinet, on the chassis, and the picture tube.
- When replacing a chassis in the cabinet, always be certain that all the protective devices are installed properly, such as control knobs, adjustment covers, shields and barriers.

DO NOT OPERATE THIS TELEVISION RECEIVER WITHOUT THE PROTECTIVE SHIELD IN POSITION AND PROPERLY SECURED.

4. Before replacing the back cover of the set, thoroughly inspect the inside of the cabinet to see that no stray parts or tools have been left inside.

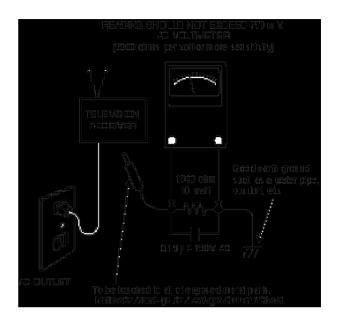
Before returning any television to the customer, the service technician must perform the following safety checks to be sure that the unit is completely safe to operate without danger of electrical shock.

ANTENNA COLD CHECK

Remove AC plug from the 120 VAC outlet and place a jumper across the two blades. Connect one lead of an ohmmeter to the jumpered AC plug, and touch the other lead to each exposed antenna terminal (UHF and VHF antenna terminals). The resistance must measure between 1M ohm and 5.2M ohm. Any resistance value below or above this range indicates an abnormality which requires corrective action.

LEAKAGE CURRENT CHECK

Plug the AC line cord directly into a 120 VAC outlet. (Do not use an isolation transformer for this check.) Use an AC voltmeter, that has 5000 ohms per volt or more sensitivity. Connect a 1500 ohm 10 watt resistor, paralleled by a 0.15 μF 150 VAC capacitor, between a known good earth ground (water pipe, conduit, etc.) and all exposed metal parts of the cabinet (antennas, handle bracket, metal cabinet, screw heads, metal overlays, control shafts, etc.). Measure the AC voltage across the 1500 ohm resistor. The AC voltage should not exceed 750 mV. A reading exceeding 750 mV indicates that a dangerous potential exists. The fault must be located and corrected. Repeat the above test with the receiver power plug reversed.



NEVER RETURN A RECEIVER TO THE CUSTOMER WITHOUT TAKING THE NECESSARY CORRECTIVE ACTION.

X-RADIATION PRECAUTION

The primary source of X-RADIATION in solid-state receivers is the picture tube. The picture tube is specially constructed to limit X-Ray emission. For continued X-RADIATION protection, the replacement tube must be the same type as the original (including the suffix letter in the part numbers). Excessive high voltage may produce potentially hazardous X-RADIATION. To avoid such hazards, the high voltage must be maintained within specific limits. Refer to the X-RADIATION WARNING NOTE on the CHASSIS SCHEMATIC in this service manual for specific high voltage limits. If the high voltage exceeds specified limits, check the components specified on the chassis schematic diagram and take the necessary corrective action. Carefully follow the instructions for the +B Voltage Check and the High Voltage Check to maintain the high voltage within the specified limits.

HIGH VOLTAGE HOLD-DOWN TEST

To prevent X-RADIATION from the picture tube due to excessive high voltage, a HOLD-DOWN circuit is provided in the high voltage circuit. Every time the receiver is serviced, the high voltage HOLD-DOWN circuit must be tested for proper operation. Refer to the HIGH VOLTAGE HOLD-DOWN TEST in service adjustments.

PRODUCT SAFETY NOTICE

When replacing components in a receiver, always keep in mind the necessary product safety precautions. Pay special attention to the replacement of components marked with a

SERVICE ADJUSTMENTS

GENERAL

This set has an On-screen Service Menu system included in the CPU that allows remote operation for most of the service adjustments.

IC802 (EEPROM) REPLACEMENT

When IC802 (EEPROM) is replaced, IC801 (CPU) will automatically write the initial reference data into IC802 for basic TV operation. However, the bus data should be checked and some bus data should be set up before attempting the service adjustments. (See pages 4 – 5 for detailed information.)

INITIAL BUS DATA SETUP

Note: When IC802 (EEPROM) is replaced, the Service Menu NO. 01 HP (H Phase), NO. 14 AF (Auto Flesh), NO. 24 AG (AFC Gain), NO. 26 SCO (Sub Color), NO. 27 STI (Sub-Tint), NO. 29 OPT (Option 1), NO. 30 OP2 (Option 2), and NO. 31 HR (OSD Display H-Position) should be set up for proper TV operation before attempting the service adjustments.

- 1. Disconnect the AC power cord (AC 120V line).
- 2. While pressing the MENU key, reconnect the AC power cord. The Service Menu display will now appear.
- 3. Select NO. 01 HP (H Phase) with ▲ or ▼ key. Adjust the data with + or key for 20.
- 4. Select NO. 14 AF (Auto Flesh) with ▲ or ▼ key. Adjust the data with + or key for 1.
- 5. Select NO. 24 AG (AFC Gain), with ▲ or ▼ key. Adjust the data with + or key for 0.
- 6. Select NO. 26 SCO (Sub Color) with ▲ or ▼ key. Adjust the data with + or key for 8.
- 7. Select NO. 27 STI (Sub Tint) with ▲ or ▼ key. Adjust the data with + or key for 19.
- 8. Select NO. 29 OPT (Option 1) with ▲ or ▼ key. Adjust the data with + or key for 36.
- 9. Select NO. 30 OPT2 (Option 2) with ▲ or ▼ key. Adjust the data with + or key for 72.
- 10. Select NO. 31 HR (OSD Display H-Position) with ▲ or ▼ key. Adjust the data with + or key for 47.
- 11. Press the MENU key to turn off the Service Menu display.

ON-SCREEN SERVICE MENU SYSTEM

1. Enter the Service Menu:

• While pressing the MENU key, reconnect the AC power cord. The Service Menu Display will now appear. (See Figure 1

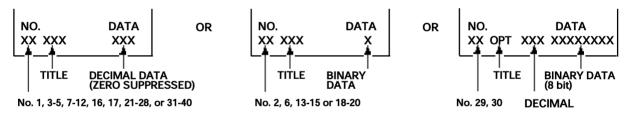


Figure 1. Service Menu Display

below.)

2. Service Adjustments:

- Press the ▲ or ▼ key to select the desired service menu you want to adjust. (See page 4 for On-screen Service Menu.)
- Use the + or key to adjust the data.

3. Exit from the Service Menu:

• Press the MENU key to turn off the Service Menu display.

Table 1. ON-SCREEN SERVICE MENU

When IC802 (EEPROM) is replaced, check the bus data to confirm they are the same as below. The shaded menu should be checked and be set up or readjusted according to the procedures described in the following pages. Initial Setup Data marked with an * should be changed from Initial Reference Data. (See page 3 for Initial Bus Data Setup.)

NO.	TITLE	INITIAL REFERENCE DATA	INITIAL SETUP DATA	RANGE OF DATA	FUNCTION
01	HP	15	17*	0~20	H-Phase (H-Centering)
02	IAS	0	0	0, 1	IF AGC Switch 0: TV (Normal) 1: AV (IF Gain Minumum)
03	RAD	25	25	0~63	RF AGC Delay
04	PT	64	64	0~127	PLL Tuning
05	ADA	31	31	0~63	APC Detect Adjust
06	CD	0	0	0, 1	C-Diff
07	VS	32	32	0~63	Vertical Size
08	RB	0	0	0~255	Red Bias
09	GB	0	0	0~255	Green Bias
10	BB	0	0	0~255	Blue Bias
11	RD	60	60	0~127	Red Drive
12	BD	60	60	0~127	Blue Drive
13	TDS	0	0	0, 1	Trap & D (B.P.F.) Switch 0: OFF 1: ON
14	AF	0	1*	0, 1	Auto Flesh 0: OFF 1: ON
15	BS	0	0	0, 1	Black Stretch 1: OFF 0: ON
16	VL	4	4	0~7	Video Level
17	FL	15	15	0~31	FM Level
18	NIS	1	1	0, 1	N/I Switch (Black Noise Inverter) 1: OFF 0: ON
19	ABL	1	1	0,1	ABL Defeat 0: OFF 1: ON
20	WP	1	1	0,1	White Peak Limiter 1: OFF 0: ON
21	GD	7	7	0~15	Green Drive Reduction
22	VC	0	0	0~7	Vert. Comp
23	VD	32	32	0~63	Vert. DC
24	AG	3	0*	0~3	AFC Gain 00: Auto 01: High Gain 10: Low Gain 11: Non-Gate
25	SB	32	32	0~63	Sub-Brightness
26	sco	10	8*	0~31	Sub-Color
27	STI	14	19*	0~31	Sub-Tint
28	SSH	8	8	0~15	Sub-Sharpness
29	OPT	0	36*	0~255	Option 1 (See Note 1 page 5.)
30	OP2	0	72*	0~255	Option 2 (See Note 2 page 5.)
31	HR	43	47*	0~63	H-Position (OSD H-Position)
32	INP	32	32	0~63	Input Level (Composite Input)
33	STE	32	32	0~63	Stereo VCO
34	FIL	63	63	0~63	fH Reject Filter
35	LSP	32	32	0~63	Low Separation
36	HSP	32	32	0~63	Hi Separation
37	SPV	32	32	0~63	SAP VCO
38	PCO	32	32	0~63	PIP Color
39	PTI	32	32	0~63	PIP Tint
40	DRV	55	60*	0~127	Red drive Adjustment (See Note 3 page 5.)
70	DKV	55	60*	0~127	Blue Drive Adjustment (See Note 3 page 5.)
	-	0	0	0~255	Red Bias Adjustment (See Note 4 page 5.)
41	-	0	0	0~255	Green Bias Adjustment (See Note 4 page 5.)
	-	0	0	0~255	Blue Bias Adjustment (See Note 4 page 5.)

SERVICE ADJUSTMENTS (Continued)

PROGRAM CODES

The microprossesor used in this model is a multi-purpose type and is used in several different models. To ensure proper operation and the correct features for your particular model, the Program Codes must be correct.

Note 1. Option Data 1 (NO. 29 OPT) should be decimal 36 (00100100 binary). See page 3 INITIAL DATA SETUP, step 9, for set up procedure. If this program code is wrong the TV will not operate properly.

	FUNCTION	DA	TA
BIT	FUNCTION	0	1
0, 1	TV HOTEL MONITOR	00: TV 01: HOTEL 10: MONITO 11: INHIBITE	· ·
2	VIDEO INPUT	NONE (*2)	YES
3, 4	CLOCK	00: NONE 01: YES (AC 10: YES (INT 11: INHIBITE	OSC)
5	STEREO/MONO	MONO (*3)	STEREO
6, 7	SURROUND	00: NONE 01: YES 10: Q-SOUN 11: INHIBITE	

Note 2. Option Data 2 (NO. 30 OPT 2) should be decimal 72 (01001000 binary). See page 3 INITIAL DATA SETUP, step 10, for set up procedure. If this program code is wrong the TV will not operate properly.

DIT	FUNCTION	DAT	Ά
BIT	FUNCTION	0	1
0	NOT USED	-	
1	COLOR ENHANCER	NONE	YES
2	INITIAL CHANNEL	NONE	YES (*4)
3	BEAM DET	NONE	YES
4	PIP	NONE	YES
5	NOT USED	_	_
6	NOT USED	_	_
7	NOT USED	_	_

- *1. When the Monitor option is used, the CPU regards the Video Input option as Yes and the PIP option as None.
- *2. When the None Video Input option is used, the CPU regards the PIP option as None.
- *3. When the Mono option is used, the CPU regards the Surround option as None.
- *4. When the Initial Channel option is used the Initial Channel, Favorite Channel, Parental Control and XDS (Extended Data Service) features are available.

Note 3. Red/Blue Drive Adjustments in Service Menu NO. 40 DRV: Adjust Red and Blue Drive Levels alternately with 1, 3, 7, and 9 keys on the remote control. (See figure 2.) The Drive Level adjustment data will be written in the Service Menu No. 11 and 12 automatically.

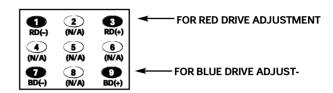


Figure 2.

Note 4. Red/Green/Blue Bias Adjustments in Service Menu NO. 41: Adjust each Bias Level with 1, 3, 4, 6, 7, or 9 key on the remote control. (See figure 3.) The Bias Level adjustment data will be written in the Service Menu No. 08 ~ 10 automatically.

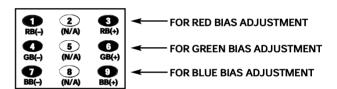


Figure 3.

SERVICE ADJUSTMENTS (Continued)

ANTENNA CONNECTIONS

This receiver is designed for UHF/VHF reception. A 75 ohm terminal is provided for UHF and VHF receptions. When connecting a CATV antenna system, connect the 75 ohm coaxial cable directly to the 75 ohm terminal. For 300 ohm VHF antenna, use an adapter (not included with the TV set).

CIRCUIT PROTECTION

Fuse F601 (4A) is included in the AC line. This fuse must be replaced with the proper fuse (see Parts List).

CAUTION



FOR CONTINUED PROTECTION AGAINST A RISK OF FIRE, REPLACE ONLY WITH THE SAME TYPE 4A, 125V FUSE.

+B VOLTAGE CHECK

Connect Voltmeter + lead to TJ1 130V and – lead to ground (TE7). Connect receiver to AC 120V line. Tune receiver to an active channel. Reset the picture controls to the FACTORY PRESET levels (press remote control RESET key twice). Voltage must measure between +128.0V and 132.0V. If the voltage is out of this range, the power circuit must be checked. No +B adjustment is provided on this chassis.

HORIZONTAL WIDTH ADJUSTMENT

- 1. Tune receiver to an active channel.
- 2. Adjust H-Width Control (VR461) for proper width.
- 3. Select several other channels and check width.

HORIZONTAL CENTERING ADJUSTMENT

- 1. Tune receiver to an active channel.
- 2. Check that picture is in the horizontal center of TV
- If picture is not centered horizontally, perform steps 3 ~ 6. 3. Turn off the receiver and disconnect the AC power cord
- (120V AC line).
 4. While pressing the MENU key, reconnect the AC power
- cord. The Service Menu display will now appear.
- 5. Select NO. 01 HP (Horizontal Phase) with ▲ or ▼ key.
- Adjust the data with + or key for proper horizontal center. To turn off the Service Menu display, press the MENU key.

VERTICAL SIZE ADJUSTMENT

- 1. Tune receiver to an active channel.
- 2. Check the vertical size of the picture. If the vertical size is too large or small, perform steps 3 ~ 6.
- Turn off the receiver and disconnect the AC power cord (120V AC line).
- While pressing the MENU key, reconnect the AC power cord. The Service Menu display will now appear.
- 5. Select NO. 07 VS (Vertical Size) with ▲ or ▼ key.
- Adjust the data with + or -key for full scan. To turn off the Service Menu display, press the MENU key.

VERTICAL CENTERING ADJUSTMENT

- 1. Tune receiver to an active channel.
- Check that picture is in the vertical center of TV screen. If picture center is too low, replace resistor R513 (1K ohm, 1/2W) with 470 ohm, 1W resistor. If picture center is too high,

remove resistor R513 (1K ohm, 1/2W).

GRAYSCALE ADJUSTMENT

- Set the picture controls to the Sports levels or Reset (use MENU key and ▲ or ▼ key or RESET key).
- 2. Turn off the receiver and disconnect the AC power cord (120V AC line).
- While pressing the MENU key, reconnect the AC power cord. The Service Menu display will now appear.
- Select NO. 08 RB (Red Bias), NO. 09 GB (Green Bias), and NO. 10 BB (Blue Bias) with ▲ or ▼ key and set each data to 0 with + or - key.
- Select NO. 11 RD (Red Drive) and NO. 12 BD (Blue Drive) with ▲ or ▼ key and set each data to 60 with + or – key.
- 6. Set NO. 21 GD (G Drive Reduction) data to 7, NO. 25 SB (Sub-Brightness) data to 32, NO. 26 SCO (Sub-Color) data to 10, NO. 27 STI (Sub-Tint) to 17 and NO. 28 SSH (Sub-Sharpness) data to 8 with ▲ or ▼, and + or keys.
- Turn Screen Control (T402) to minimum (fully counterclockwise).
- Advance Screen Control (T402) clockwise to obtain just visible one color line. If line does not appear, place this control to maximum (fully clockwise).



Figure 4. Remote Control Number keys' function in Service Menu NO. 41

- 10. Raise each Bias Level with 3, 6, and 9 keys to obtain just visible white line. (See Figure 4 below.)
- Select the Service Menu NO. 40 DRV (Drive Adjustments) with ▲ or ▼ key.
- 12. Adjust Red and Blue Drive Levels alternately with 1, 3,

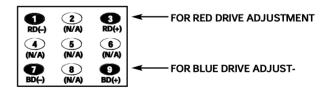


Figure 5. Remote Control Number keys' function in Service Menu NO. 40 DRV

- 7, or 9 key to produce normal black and white picture in highlight areas. (See figure 5 below.)
- Check for proper grayscale at all brightness levels.
 To turn off the Service Menu display, press the MENU key.

Note: If Grayscale Adjustment is made after picture tube replacement, check Brightness Level Adjustment.

FOCUS ADJUSTMENT

Adjust focus control (T402) for well defined scanning lines.

PLLTUNING ADJUSTMENT

Note: PLL Tuning must be adjusted after IC101 (Signal Processor), IC802 (EEPROM) or T151 (PLL VCO Coil) is replaced.

- 1. Disconnect the AC power cord (120V AC line).
- While pressing the MENU key, reconnect the AC power cord. The Service Menu display will now appear.
- 3. Select NO. 04 PT (PLL Tuning) with ▲ or ▼ key.
- 4. Adjust the data to 64 with + or key.
- 5. Disconnect the AC power cord (120V AC line).
- Connect voltmeter + lead to TP113 on main board and - lead to main board ground.
- 7. Press and Hold the POWER key on the front control panel while connecting the AC power cord. TV will turn on.
- Disconnect the antenna terminal and select a good quality active color channel in your area, using keys 0 ~ 9 on the remote control. Wait a few seconds, and then reconnect the antenna terminal.
- Turn PLL VCO coil (T151) on main board fully clockwise, and then gradually turn the coil counterclockwise until voltage is at the maximum level (approximately 6.7 VDC). Continue to turn the coil counterclockwise until the voltage is at the minimum level (approximately 0.7 VDC), and then turn the coil clockwise until voltage indicates 3.8 ± 1.0 VDC. Voltage change in the coil adjustments is shown in Figure 6.
- 10. Disconnect voltmeter from chassis.

Select every active channel with keys 0 ~ 9 and the scanning keys, and check to be sure the AFT is operating properly.

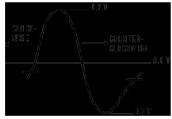


Figure 6. Voltage Change in Coil Adjustment

RF-AGC ADJUSTMENT

- 1. Tune receiver to strongest VHF station in your area.
- 2. Set contrast and brightness controls for maximum.
- Turn off the receiver and disconnect the AC power cord (120V AC line).
- While pressing the MENU key, reconnect the AC power cord. The Service Menu display will now appear.
- 5. Select NO. 03 RAD (RF-AGC Delay) with ▲ or ▼ key.
- Adjust the data with + or key in the direction which causes snow to appear; then in the opposite direction until the snow just disappears.
- 7. To turn off the Service Menu display, press the MENU key.

BRIGHTNESS LEVEL ADJUSTMENT

Note: Grayscale, RF-AGC, Video Level and High Voltage Check must be adjusted before attempting Brightness Level Adjustment.

- 1. Connect a color-bar generator to the antenna terminals.
- 2. Switch the generator to the crosshatch pattern.
- 3. Reset the picture controls to the Sports levels.

- Connect voltmeter (high impedance) + lead to terminal TP51 and - lead to terminal TP50 on main board. Set voltmeter for 1.5V ~ 3V range.
- 5. Turn off the receiver and disconnect the AC power cord (120V AC line).
- While pressing the MENU key, reconnect the AC power cord. The Service Menu display will now appear.
- 7. Select NO. 25 SB (Sub Brightness) with ▲ or ▼ key.
- 8. Adjust the data with + or key for 820mVDC.
- 9. Press the MENU key to turn off the Service Menu display.
- Check brightness level on every active channel, readjust (repeat steps 5 ~ 9) if necessary).

Note: Do not set to excessive brightness level, otherwise the contrast level will be suppressed.

HIGH VOLTAGE HOLD-DOWN TEST

Every time the receiver is serviced, the HIGH VOLTAGE HOLD-DOWN circuit must be tested for proper operation by following these steps:

- Connect receiver to 120V AC line. Tune receiver to active channel. Reset the picture controls to the News levels.
- Check that the voltage measured between TP7 and TE7 (ground side) is within 16.5 VDC to 21 VDC. If the voltage is out of this range, the Hold-Down Circuit must be checked.
- 3. Connect a DC Voltage supply to TP7 and TE7 through a 100 ohm 1/4W resistor. Adjust the DC voltage to 23 VDC. The receiver should shutdown, losing raster and sound. Then the receiver should turn off automatically. This reaction indicates that the Hold-Down circuit is functioning properly. If the receiver does not shutdown, a malfunction is indicated and its cause must be found and corrected.
- 4. To obtain picture again, remove the DC Supply and wait a few minutes. Now turn on the receiver.

HIGH VOLTAGE CHECK

Note: +B (+130V) Voltage Check and Grayscale Adjustment must be completed before attempting High Voltage Check.

- 1. Connect high voltage voltmeter negative lead to ground, and connect + lead to anode of picture tube.
- 2. Tune receiver to an active channel and confirm TV is operating properly.
- Eliminate the beam current by adjusting the contrast and brightness controls to minimum.
- 4. Confirm high voltage is within 29.0 KV and 31.0 KV. If reading is not within range, check horizontal circuit.

No high-voltage adjustment is provided on this chassis.

SOUND ADJUSTMENT

- Connect Voltmeter lead to ground and + lead IC101 Pin 50 (FM DET OUT).
- Tune receiver to an active channel and fine tune to obtain the best picture.
- 3. Confirm D.V.M. reading of 3.85 \pm 0.2 VDC.
- 4. If the voltage is out of this range, adjust Sound I.F. Transformer (T131) for 3.85 ± 0.2 VDC.

SERVICE ADJUSTMENTS (Continued)

MULTI-SOUND SECTION ADJUSTMENTS

Note: Multi-Sound Section must be adjusted after IC101 (Signal Processor), IC3401 (MTS Decoder), IC802 (EEPROM), or T131 (Sound I.F. transformer) is replaced.

INPUT LEVEL ADJUSTMENT

- 1. Turn off the receiver and disconnect the AC power cord (AC 120V line).
- Connect audio signal generator output (300 Hz, 150 mVrms) to TP301 and ground.
- 3. Ground TP21 with a short jumper lead.
- 4. Connect voltmeter (RMS) to TP317 and ground.
- While pressing the Menu key, reconnect the AC power cord. The Service Menu will now appear.
- 6. Select NO. 32 INP (Input Level) with the ▲ or ▼ key.
- 7. Adjust the \pm or \pm key for a voltmeter reading of 400 \pm 5% mVrms at TP317.

STEREO VCO ADJUSTMENT

- Turn off the receiver and disconnect the AC power cord (AC 120V line).
- Remove signal generator from TP301 and voltmeter from TP317.
- 10. Connect frequency counter to TP317 and ground.
- 11. While pressing the Menu key, reconnect the AC power cord. The Service Menu will now appear.
- 12. Select NO. 33 STE (Stereo VCO) with the ▲ or ▼ key.
- 13. Adjust the + or key for a frequency counter reading of 15.734 \pm 0.1 KHz at TP317.

FILTER ADJUSTMENT

- 14. Turn off the receiver and disconnect the AC power cord (AC 120V line).
- 15. Remove frequency counter from TP317.
- Connect audio signal generator output (15.734 KHz, 100 mVrms) to TP301 and ground.
- 17. Connect voltmeter (RMS) to TP317 and ground.
- 18. While pressing the Menu key, reconnect the AC power cord. The Service Menu will now appear.
- 19. Select NO. 34 FIL (Filter) with the ▲ or ▼ key.
- Adjust the + or key until voltage is at trap point.
 Voltage change in the filter adjustments is shown in Figure 7.

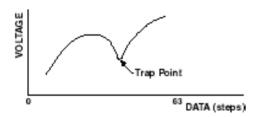


Figure 7. Filter Adjustment

SEPARATION ADJUSTMENT

- Turn off the receiver and disconnect the AC power cord (AC 120V line).
- 22. Remove jumper lead from TP21, signal generator from TP301 and voltmeter from TP317.
- Connect oscilloscope CH1 to TP317 and CH2 to TP318 and ground.
- Connect an MTS TV/Stereo generator to antenna terminal.
- Select pilot, 300Hz audio frequency and Left modulating signal.
- 26. While pressing the Menu key, reconnect the AC power cord. The Service Menu will now appear.
- 27. Select NO. 35 LSP (Low Separation) with the ▲ or ▼ key.
- 28. Adjust the + or key for minimum low frequencies at TP317. (See Figure 8.)
- 29. Select 4 KHz audio frequency and Right modulating signal.
- 30. Select NO. 36 HSP (High Separation) with the ▲ or ▼ key.
- 31. Adjust the + or key for minimum high frequencies at TP318. (See Figure 8.)

Repeat adjustments (steps 27-31) until no further decreases

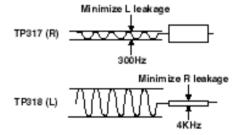


Figure 8. Separation Adjustments

in amplitude can be obtained.

SAP VCO ADJUSTMENT

- 32. Turn off the receiver and disconnect the AC power cord (AC 120V line).
- Remove oscilloscope from TP317 and TP318, and MTS TV/Stereo generator from antenna terminal.
- 34. Connect frequency counter to TP317 and ground.
- 35. Ground TP21 with a short jumper lead.
- 36. Connect a 1 $\mbox{M}\Omega$ resistor between TP316 and ground.
- 37. While pressing the Menu key, reconnect the AC power cord. The Service Menu will now appear.
- 38. Select NO. 37 SPV (SAP VCO) with the ▲ or \blacktriangledown key.
- 39. Adjust the + or key for a frequency counter reading of 78.67 \pm 0.5 KHz at TP317.
- 40. Press the MENU key to turn off the Service Menu display.

PURITY AND CONVERGENCE ADJUSTMENTS

Purity and Convergence have been aligned at the factory. No re-alignment is necessary.

SERVICE HINTS

POWER FAILURE DETECTOR

This set is equipped with a Power Failure Detector function included in the CPU which checks for an abnormal condition in the chassis power supplies, including the power supply derived from the Horizontal Output Transformer.

If, while the power is on, a failure is caused by any of the following which results in a low voltage supply, the CPU will turn the set off in 1.5 seconds to prevent unnecessary damage:

- Failure within the power supply circuits.
- A short circuit in the load side from the supply.
- Stoppage of the Horizontal Output Oscillator caused by the X-Radiation protection Hold-Down Circuit.

If, while the power is off, the power is switched on and any of these failures remains uncorrected, the CPU will shut off the power within 3 seconds.

Check the following if the set is turned off by the power failure detector.

- 1. Disconnect the AC power cord (120V AC line) for at least 10 seconds.
- 2. Connect a DC Voltmeter to the following TEST POINTS.

TJ5	9V
TJ7	7.6V
D312 Cathode	5V
D429 Cathode	5V

- 3. Press the power key and check for the proper voltage supplies.
- 4. If any of these voltages is low, the power failure detector should turn the set off within 3 seconds.
- 5. Check all circuits listed above.

Note: This set is equipped with a Power Surge Protection feature included in the CPU. If power failure occurs three times within 15 minutes, the CPU will automatically stop functioning to help prevent secondary damage. (TV will not turn on by pressing the power key.) To reset the operating programs within the CPU, disconnect the AC power cord for at least 10 seconds.

MECHANICAL DISASSEMBLIES

CABINET BACK REMOVAL

- 1. Refer to Figure 1, remove 12 screws.
- 2. Pull off cabinet back and remove.

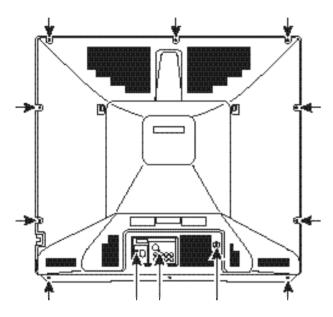


Figure 1. Cabinet Back Removal

CHASSIS REMOVAL

- 1. Remove cabinet back.
- 2. Discharge the picture tube anode (2nd anode lead) to the dag coating (picture tube grounding lead).
- 3. Disconnect Degaussing coil socket (KD), Picture tube socket, Deflection yoke connector (KX), Speakers connector (K58N), S-Video connector (K58M)picture tube ground leads, and 2nd anode lead.
- 4. Remove chassis completely by sliding it straight back.

PICTURE TUBE REMOVAL

CAUTION: Do not disturb the deflection yoke or magnet assembly on the picture tube neck. Care must be taken to keep these assemblies intact, unless picture tube is being replaced. Discharge the picture tube to the coating before handling the tube.

- 1. Remove chassis, referring to Chassis Removal instructions.
- 2. Place cabinet's front face down on a soft surface.
- 3. Remove the screw on each corner of the picture tube and GENTLY lift the picture tube out of the cabinet.
- 4. Install a replacement picture tube in reverse order. Properly install the degaussing coil and picture tube grounding lead on the picture tube. See Figure 2.

Note: If Picture Tube is being replaced, mount the Degaussing Coil properly on the tube. See Figure 2.

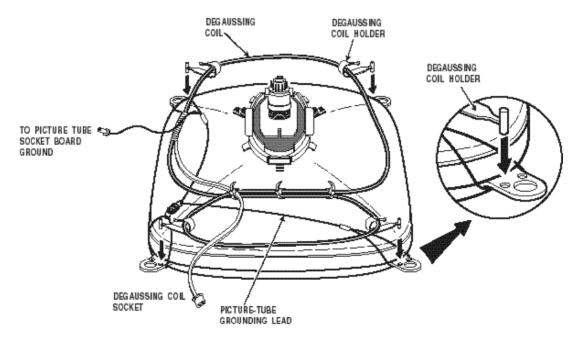


Figure 2. Picture Tube Removal

CHASSIS ELECTRICAL PARTS LIST

CAUTION: To Protect against electrical shock and for continued product safety, refer to SAFETY PRECAUTIONS, X-RADIATION PRECAUTIONS, HIGH VOLTAGE HOLD-DOWN TEST, and PRODUCT SAFETY NOTICE on Page 2.

PRODUCT SAFETY NOTICE

PRODUCT SAFETY SHOULD BE CONSIDERED WHEN A REPLACEMENT IS MADE IN ANY AREA OF A RECEIVER. COMPONENTS INDICATED BY A STAR (*) IN THIS PARTS LIST AND THE SCHEMATIC DIAGRAM DESIGNATE COMPONENTS IN WHICH SAFETY CAN BE OF SPECIAL SIGNIFICANCE. IT IS PARTICULARLY RECOMMENDED THAT ONLY PARTS DESIGNATED ON THE FOLLOWING PARTS LIST BE USED FOR COMPONENT REPLACEMENT DESIGNATED BY A STAR. NO DEVIATIONS FROM RESISTANCE, WATTAGE, AND VOLTAGE RATINGS MAY BE MADE FOR REPLACEMENT ITEMS DESIGNATED BY A STAR.

Notes: Parts having Location Number are located on the following boards.

Numbers under 700 SeriesOn the Main Board.

Numbers 700 Series On the Picture Tube Socket Board.

Numbers 800 Series On the Main Board Numbers 900 SeriesOut of Board. Numbers 1000 SeriesOn the Main Board Numbers 1900 seriesOn the Main Board Numbers 3400 seriesOn the Main Board

Note: Schematic part location numbers may not always match with the part descriptions. The part descriptions are correct and should be used.

Schematic Location	Part No.	Description	Schematic Location	Part No.	Des	cription	
CAPACITORS			C001	403 049 0008	ELECT	1U M	50V
NOTES:			C002	403 049 0008	ELECT	1U M	50V
Read description of the Capacitor as follows:			C003	403 074 7617	CERAMIC	5600P K	50V
(Everente)			C004	403 074 7617	CERAMIC	5600P K	50V
(Example) CERAMIC	100P K 50V		C010	403 044 1703	ELECT	470U M	16V
CEICAIVIIC		Rated Voltage	C011	403 044 1703	ELECT	470U M	16V
		rance Symbols:	C015	403 044 1703	ELECT	470U M	16V
		than 10PF	C016	403 069 9510	CERAMIC	0.01U Z	50V
		Not specified	C101	403 039 3507	ELECT	470U M	6.3V
		±0.1PF C±0.25PF ±0.5PF F±1PF	C103	403 069 9510	CERAMIC	0.01U Z	50V
		±2PF R+0.25 - 0PF	C104	403 038 8602	ELECT	33U M	6.3V
		+0 - 0.25PF E+0 - 1PF	C106	403 050 6600	ELECT	3.3U M	50V
		e than 10PF	C131	403 049 0008	ELECT	1U M	50V
		Not specified	C133	403 069 9510	CERAMIC	0.01U Z	50V
		±0.1% C±0.25% ±0.5% F±1%	C142	403 062 7107	POLYESTER	0.056U K	50V
		±0.5% 1±1% ±2% H±3%		403 312 2609	POLYESTER	0.056U K	50V
		±5% K±10%	C143	403 069 9510	CERAMIC	0.01U Z	50V
		±15% M±20%	C147	403 043 9106	ELECT	47U M	16V
		±30% P+100 - 0%	C151	403 048 6308	ELECT	0.47U M	50V
		+30 - 10% T+50 - 10% +75 - 10% V+20 - 10%	C161	403 069 9510	CERAMIC	0.01U Z	50V
		+100 - 10% X +40 - 20%	C166	403 020 0419	CERAMIC	27P J	50V
		+150 - 10% Z+80 - 20%	C202	403 069 8315	CERAMIC	0.01U Z	50V
	Rated Value:	PPico Farad UMicro Farad	C208	403 041 8804	ELECT	10U M	16V
	erial:		C211	403 049 0008	ELECT	1U M	50V
	AMIC Cera PAPER Met		C212	403 049 9803	ELECT	2.2U M	50V
	YESTERPoly		C221	403 041 8804	ELECT	10U M	16V
	POLYESTMet		C252	403 060 8403	POLYESTER	0.033U K	50V
	YPROPoly			403 312 1305	POLYESTER	0.033U K	50V
		allized Polypropylene	C253	403 049 9803	ELECT	2.2U M	50V
	MPO-FILMCom		C256	403 041 4509	ELECT	470U M	10V
	RENE Styr	allized Composite	C258	403 041 8804	ELECT	10U M	16V
	SOLIDTan		C272	403 050 6600	ELECT	3.3U M	50V
AL-S	SOLID Alur	minum Solid	C300	403 069 9510	CERAMIC	0.01U Z	50V
	CTElec		C303	403 070 2616	CERAMIC	0.1U Z	50V
		-Polarized Electrolytic	C304	403 043 9106	ELECT	47U M	16V
US-	SOLIDAlur Sem	minum Solid with Organic niconductive Electrolytic	C307	403 018 0513	CERAMIC	22P J	50V

Schematic Location	Part No.	Description		Schematic Location	Part No.	Descr	iption	
C308	403 022 8215	CERAMIC 33P	J 50V	C509	403 166 7716	MT-POLYEST	0.4711.1	 63V
C309	403 022 8213	ELECT 10U I		C309	403 067 7805	MT-POLTEST	0.47U J	50V
C310	403 069 9510	CERAMIC 0.01U		C511	403 057 3107	POLYESTER	0.470 S	50V
C312	403 048 6308	ELECT 0.47U I		0011	403 311 8909	POLYESTER	0.1U K	50V
C313	403 069 9510	CERAMIC 0.01U		C516	403 041 8804	ELECT	10U M	16V
C314	403 069 9510	CERAMIC 0.01U		★ C601	404 071 2404	MT-POLYEST		250V
C315	403 011 4914	CERAMIC 120P			404 066 2204	MT-POLYEST		275V
C316	403 069 9510	CERAMIC 0.01U		★ C608	403 247 5508		4700P K	1K
C317	403 014 9213	CERAMIC 180P	J 50V		403 232 0600	CERAMIC	4700P K	1K
C318	403 069 9510	CERAMIC 0.01U	Z 50V	C609	404 075 5005	ELECT	470U M	200V
C322	403 069 9510	CERAMIC 0.01U	Z 50V	C612	403 166 8218	MT-POLYEST	0.18U J	63V
C323	403 069 9510	CERAMIC 0.01U	Z 50V		403 067 6501	MT-COMPO	0.18U J	50V
C331	403 069 9510	CERAMIC 0.01U		C613	403 214 5203	POLYESTER		50V
C332	403 039 3507	ELECT 470U I			403 311 9203	POLYESTER		50V
C336	403 024 2112	CERAMIC 39P		C620	403 214 5203	POLYESTER		50V
C341	403 018 0513	CERAMIC 22P			403 311 9203	POLYESTER		50V
C342	403 033 4510	CERAMIC 82P		C622	403 044 1703	ELECT	470U M	16V
C343	403 009 5718	CERAMIC 100P		★ C625	403 232 0402		2700P K	1K
C344	403 069 9510	CERAMIC 0.01U		C626	403 043 1902		2200U M	16V
C351	403 050 6600	ELECT 3.3U I		C628	404 037 0703	ELECT	470U M	160V
C352	403 070 5518	CERAMIC 1200P		C629	403 043 0202	ELECT	220U M	16V
C371	403 048 6308	ELECT 0.47U I		C630	403 049 0008	ELECT	1U M	50V
C401	403 052 7308	ELECT 100U I		★ C631	404 008 6604		1000P K	125V
C403	403 059 6205	POLYESTER 0.022U			404 046 5409		1000P M	125V
0.405	403 312 0506	POLYESTER 0.022U			404 073 4000		1000P M	250V
C405	403 051 0607	ELECT 4.7U I		★ C632	404 008 6802		2200P M	125V
C406	403 076 3617	CERAMIC 470P			404 046 5003		2200P M	125V
C407	403 076 0517	CERAMIC 2200P		0024	404 073 4604		2200P M	250V
C408	403 103 0005 404 069 6407	ELECT 4.7U I MT-POLYPRO 8600P		C634 C683	403 043 9106 403 038 6301	ELECT ELECT	47U M 220U M	16V 6.3V
★ C411	404 009 6407	MT-POLYPRO 8600P		C688	403 042 2405	ELECT	100U M	0.3V 16V
★ C412	404 077 5003	MT-POLYPRO 8000P		C689	403 070 2616	CERAMIC	0.1U Z	50V
A 0412	404 077 4709	MT-POLYPRO 8000P		C693	403 049 0008	ELECT	1U M	50V
★ C413	403 083 4911	POLYPRO 0.027U		C701	403 049 0008	ELECT	1U M	50V
★ C414	403 083 3914	POLYPRO 0.018U		C703	403 075 4219	CERAMIC	820P K	50V
★ C416	403 082 9016	POLYPRO 0.27U		C705	403 075 4219	CERAMIC	820P K	50V
★ C417	403 082 9818	POLYPRO 0.33U		C707	403 075 4219	CERAMIC	820P K	50V
C419	403 158 9107	MT-POLYEST 2.2U		★ C708	403 175 3419	CERAMIC	1000P P	2K
C421	403 038 6301	ELECT 220U I			403 077 2807	CERAMIC	1000P Z	2K
C422	403 066 6106	MT-POLYEST 0.47U	J 250V	C721	403 041 8804	ELECT	10U M	16V
C426	403 039 3507	ELECT 470U I	∕I 6.3V	C801	403 069 9510	CERAMIC	0.01U Z	50V
C461	403 051 0607	ELECT 4.7U I	/ 50V	C806	403 039 3507	ELECT	470U M	6.3V
C462	403 038 1603	ELECT 100U I	∕I 6.3V	C811	403 049 0008	ELECT	1U M	50V
C466	403 047 3100	ELECT 47U I	∕I 25V	C822	403 041 8804	ELECT	10U M	16V
C470	403 166 7716	MT-POLYEST 0.47U	J 63V	C829	403 049 0008	ELECT	1U M	50V
	403 067 7805	MT-COMPO 0.47U	J 50V	C831	403 076 5314	CERAMIC	680P K	500V
C482	403 115 0802	ELECT 22U I		C832	403 062 0504	POLYESTER (50V
C484	403 051 0607	ELECT 4.7U I			403 312 2203	POLYESTER (50V
C486	403 076 3617	CERAMIC 470P		C835	403 069 9510	CERAMIC	0.01U Z	50V
C487	403 052 8503	ELECT 1000U I		C836	403 069 9510	CERAMIC	0.01U Z	50V
C493	404 056 5307	NP-ELECT 2.2U I		C841	403 069 9510	CERAMIC	0.01U Z	50V
C497	403 039 6508	ELECT 100U I		C842	403 069 9510	CERAMIC	0.01U Z	50V
C502	403 053 2104	ELECT 220U I		C843	403 069 9510	CERAMIC	0.01U Z	50V
C503	403 205 4703	ELECT 4.7U		C853	403 047 8402	ELECT	0.1U M	50V
C504	403 045 9807	ELECT 2200U I		C854	403 074 6610	CERAMIC	560P K	50V
C505	403 166 8010	MT-POLYEST 0.33U		C856	403 049 0008	ELECT	1U M	50V
0500	403 067 7300	MT-COMPO 0.33U		C857	403 018 7413	CERAMIC	220P J	50V
C506	403 059 0104	POLYESTER 0.018U		C858	403 069 1712		1000P K	50V
	403 312 0100	POLYESTER 0.018U	K 50V	C862	403 069 9510	CERAMIC	0.01U Z	50V

Schematic Location	Part No.	De	scription		Schematic Location	Part No.	Description
C1000	403 069 9510	CERAMIC	0.01U Z		D407	407 095 8001	DIODE ERD07-15L
	403 041 8804						ZENER DIODE HZ11B2L (11V)
C1001 C1051	403 041 8804	ELECT ELECT	10U M 22U M	16V 16V	★ D421 ★ D422	407 158 1307 407 158 1307	` ,
C1051 C1052		CERAMIC	0.01U Z	50V	₩ D422 D428		ZENER DIODE HZ11B2L (11V)
C1052	403 069 9510 403 041 8804	ELECT	10U M	16V	D420	407 099 7109 407 054 5904	ZENER DIODE MTZJ15C (15V)
C1059 C1071	403 069 9510	CERAMIC	0.01U Z	50V	D429	407 005 4505	ZENER DIODE RD15EB3 (15V) DIODE DS442X
C1071	403 070 2616	CERAMIC	0.010 Z	50V 50V	D423	408 008 2406	DIODE 1N4148
C1081	403 041 8804	ELECT	10U M	16V		407 012 4406	DIODE 185133
C1902	403 041 8804	ELECT	10U M	16V		407 013 4207	DIODE 153133 DIODE 1S2076
C3400	403 069 9510	CERAMIC	0.01U Z	50V		407 013 7109	DIODE 152473
C3401	403 044 1703	ELECT	470U M	16V	D463	408 008 2406	DIODE 1N4148
C3402	403 042 7707	ELECT	22U M	16V	2100	407 013 4306	DIODE 1S2076A
C3403	403 070 2616	CERAMIC	0.1U Z	50V		407 013 6508	DIODE 1S2471
C3404	403 050 6600	ELECT	3.3U M	50V	D481	407 124 6404	DIODE ERA18-04
C3406	403 166 1605	NP-ELECT	4.7U M	25V	2.5.	407 007 6606	DIODE ES1
C3407	403 049 9803	ELECT	2.2U M	50V		407 124 5506	DIODE RMPG06G
C3408	403 074 3114	CERAMIC	0.047U Z	50V	D482	407 011 4407	DIODE TVR1G
C3409	403 048 6308	ELECT	0.47U M	50V	D483	407 124 6404	DIODE ERA18-04
C3410	403 070 2616	CERAMIC	0.1U Z	50V		407 007 6606	DIODE ES1
C3411	403 047 8402	ELECT	0.1U M	50V		407 124 5506	DIODE RMPG06G
C3412	403 342 9213	TA-SOLID	3.3U K	10V	D486	407 099 6102	ZENER DIODE MTZJ10B (10V)
C3413	403 049 0008	ELECT	1U M	50V		407 054 0008	ZENER DIODE RD10EB2 (10V)
C3414	403 299 1820	TA-SOLID	10U K	10V	D487	407 005 8602	DIODE ERA15-02
C3416	403 049 0008	ELECT	1U M	50V		407 088 6502	DIODE MPG06D
C3417	403 049 0008	ELECT	1U M	50V		407 011 3004	DIODE S5277B
C3418	403 051 0607	ELECT	4.7U M	50V		408 009 9404	DIODE 1N4002ID
C3419	403 049 0008	ELECT	1U M	50V	D489	407 005 4505	DIODE DS442X
C3423	403 072 1617	CERAMIC	0.022U K	50V		408 008 2406	DIODE 1N4148
C3424	403 049 9803	ELECT	2.2U M	50V		407 012 4406	DIODE 1SS133
C3426	403 071 8112	CERAMIC	2200P K	50V		407 013 4207	DIODE 1S2076
C3427	403 070 2616	CERAMIC	0.1U Z	50V		407 013 7109	DIODE 1S2473
C3428	403 049 9803	ELECT	2.2U M	50V	D493	407 063 9306	ZENER DIODE MTZJ7.5C (7.5V)
C3429	403 071 8112	CERAMIC	2200P K	50V		407 057 6502	ZENER DIODE RD7.5EB3 (7.5V)
C3431	403 070 2616	CERAMIC	0.1U Z	50V	D501	407 005 8602	DIODE ERA15-02
C3435	403 049 0008	ELECT	1U M	50V		407 088 6502	DIODE MPG06D
C3437	403 049 0008	ELECT	1U M	50V		407 011 3004	DIODE S5277B
C3439	403 049 0008	ELECT	1U M	50V		408 009 9404	DIODE 1N4002ID
C3440	403 075 0716	CERAMIC	6800P K	50V	D503	407 100 0204	ZENER DIODE MTZJ36A (36V)
C3446	403 046 9905	ELECT	4.7U M	25V		407 056 2307	ZENER DIODE RD36EB1 (36V)
C3448	403 046 9905	ELECT	4.7U M	25V	★ D601	407 005 7605	DIODE EM2B
						408 008 8606	DIODE GP15G
	DIODES				1 D000	407 013 3200	DIODE 1S1887A
D101	407 100 0204	ZENED DIO	DE MIT7 126 A	(26)()	★ D602	407 005 7605	DIODE EM2B
D101	407 056 2307		de MTZJ36A De RD36eb1			408 008 8606	DIODE GP15G
D103	407 056 2507		DE RD5.1FB2		+ DCO2	407 013 3200	DIODE 1S1887A
D103	407 056 9009		DE RD5.1FB2		★ D603	407 005 7605	DIODE EM2B DIODE GP15G
D311	407 099 5006		DE MTZJ4.7 <i>8</i>			408 008 8606	DIODE GP15G DIODE 1S1887A
DSTI	407 056 7906		DE RD5.1EB1		★ D604	407 013 3200 407 005 7605	DIODE 151887A DIODE EM2B
D312	407 005 4505	DIODE DS4		(3.14)	★ 1/00/4	408 008 8606	DIODE EM26 DIODE GP15G
DOIL	408 008 2406	DIODE 1N4				407 013 3200	DIODE 1S1887A
	407 012 4406	DIODE 1N4			D609	407 013 3200	DIODE 131887A DIODE ERA18-02
	407 012 4400	DIODE 133			מטטע	407 007 6903	DIODE ERATO-02 DIODE ES1Z
	407 013 7109	DIODE 152				407 124 5605	DIODE ESTZ DIODE RMPG06D
D351	407 099 6607		DE MTZJ12B	(12V)		408 009 9008	DIODE RIVIFGOOD DIODE BYD33D
_00.	407 063 8408		DE MTZJ120 DE MTZJ12C		D610	408 009 9008	DIODE 1N4148
	407 054 3207		DE RD12EB2		2010	407 013 4306	DIODE 1S2076A
	407 054 3306		DE RD12EB3			407 013 4508	DIODE 152070A
D406	407 006 4108	DIODE ERB		/		.0. 0.0 0000	2.352 102171

Schematic Location	Part No.	Description	Schematic Location	Part No.	Description
D611	407 099 5808	ZENER DIODE MTZJ7.5A (7.5V)		407 055 1905	ZENER DIODE RD20EB3 (20V)
20	407 057 6304	ZENER DIODE RD7.5EB1 (7.5V)	D836	407 005 4505	DIODE DS442X
★ D612	407 147 5705	PHOTO COUPLE ON3131S		408 008 2406	DIODE 1N4148
	407 104 2402	PHOTO COUPLE PC817C		407 012 4406	DIODE 1SS133
	407 106 6101	PHOTO COUPLE PC817D		407 013 4207	DIODE 1S2076
	407 175 9904	PHOTO COUPLE TLP621-1-BL		407 013 7109	DIODE 1S2473
D614	408 008 2406	DIODE 1N4148	D843	407 005 4505	DIODE DS442X
	407 013 4306	DIODE 1S2076A		408 008 2406	DIODE 1N4148
	407 013 6508	DIODE 1S2471		407 012 4406	DIODE 1SS133
★ D621	407 007 7603	DIODE EU2		407 013 4207	DIODE 1S2076
★ D624	407 129 6706	DIODE RU4YX LF-L1		407 013 7109	DIODE 1S2473
★ D625	407 129 7000	DIODE RU4AM LF-L1	D1001	407 099 6102	ZENER DIODE MTZJ10B (10V)
D627	407 005 4505	DIODE DS442X		407 054 0008	ZENER DIODE RD10EB2 (10V)
	408 008 2406	DIODE 1N4148	D1008	407 065 1308	ZENER DIODE MTZJ3.6B (3.6V)
	407 012 4406	DIODE 1SS133		407 056 4707	ZENER DIODE RD4.3EB2 (4.3V)
	407 013 4207	DIODE 1S2076	D1009	407 065 1308	ZENER DIODE MTZJ3.6B (3.6V)
	407 013 7109	DIODE 1S2473		407 056 4707	ZENER DIODE RD4.3EB2 (4.3V)
D629	407 099 7208	ZENER DIODE MTZJ16A (16V)	D1051	407 099 6102	ZENER DIODE MTZJ10B (10V)
	407 054 7007	ZENER DIODE RD16EB1 (16V)		407 054 0008	ZENER DIODE RD10EB2 (10V)
D680	407 005 4505	DIODE DS442X	D1052	407 099 6102	ZENER DIODE MTZJ10B (10V)
	408 008 2406	DIODE 1N4148		407 054 0008	ZENER DIODE RD10EB2 (10V)
	407 012 4406	DIODE 1SS133	D1059	407 063 9306	ZENER DIODE MTZJ7.5C (7.5V)
	407 013 4207	DIODE 1S2076		407 057 6502	ZENER DIODE RD7.5EB3 (7.5V)
	407 013 7109	DIODE 1S2473	D1901	407 063 9306	ZENER DIODE MTZJ7.5C (7.5V)
D683	407 005 4505	DIODE DS442X		407 057 6502	ZENER DIODE RD7.5EB3 (7.5V)
	408 008 2406	DIODE 1N4148			
	407 012 4406	DIODE 1SS133		INITECDATE	D CIDCLUTE
	407 013 4207	DIODE 1S2076	10000		D CIRCUITS
D.0.=	407 013 7109	DIODE 1S2473	IC002	409 275 7903	IC LA4525
D687	407 005 4505	DIODE DS442X	★ IC101	409 431 2100	IC LA76170N
	408 008 2406	DIODE 1N4148	IC301 ★ IC501	409 406 1107 409 340 1904	IC TC90A44P IC LA7841
	407 012 4406	DIODE 188133	★ IC601	409 172 8102	IC SE130NH
	407 013 4207	DIODE 1S2076 DIODE 1S2473	IC681	409 172 8102	IC TA78L05S
D693	407 013 7109 407 099 5402		10001	409 066 7303	IC UPC78L05J
D093	407 057 2702	ZENER DIODE MTZJ6.2B (6.2V) ZENER DIODE RD6.2EB2 (6.2V)	IC801	410 324 5306	IC M37272M8-XXXSP
D694	407 005 4505	DIODE DS442X	IC802	409 376 1503	IC ST24C02B6
D034	408 008 2406	DIODE 1N4148	10002	409 333 3700	IC 24LC02B/P
	407 012 4406	DIODE 1SS133	IC1081	409 051 3006	IC TC4053BP
	407 012 4400	DIODE 153135 DIODE 152076	IC3401	409 432 7807	IC UPC1851BCU
	407 013 7109	DIODE 1S2473		100 102 7007	10 01 0 100 1200
D721	407 005 4505	DIODE DS442X			
	408 008 2406	DIODE 1N4148		COILS	
	407 012 4406	DIODE 1SS133	★ LF601	645 012 0589	LINE FILTER
	407 013 4207	DIODE 1S2076		645 026 8274	LINE FILTER
	407 013 7109	DIODE 1S2473	L164	645 003 9713	INDUCTOR, 15U K
D722	407 005 4505	DIODE DS442X		645 016 2657	INDUCTOR, 15U K
	408 008 2406	DIODE 1N4148	L166	645 003 9812	INDUCTOR, 33U K
	407 012 4406	DIODE 1SS133		645 016 2985	INDUCTOR, 33U K
	407 013 4207	DIODE 1S2076	L305	645 008 2894	INDUCTOR, 5.6U K
	407 013 7109	DIODE 1S2473		645 016 3104	INDUCTOR, 5.6U K
D801	407 005 4505	DIODE DS442X	L306	645 003 9782	INDUCTOR, 22U K
	408 008 2406	DIODE 1N4148		645 016 2831	INDUCTOR, 22U K
	407 012 4406	DIODE 1SS133	L309	645 008 2894	INDUCTOR, 5.6U K
	407 013 4207	DIODE 1S2076		645 016 3104	INDUCTOR, 5.6U K
	407 013 7109	DIODE 1S2473	L310	610 078 5946	PIPE CORE
D831	407 065 1308	ZENER DIODE MTZJ3.6B (3.6V)	L312	645 008 2894	INDUCTOR, 5.6U K
	407 056 4707	ZENER DIODE RD4.3EB2 (4.3V)	1.000	645 016 3104	INDUCTOR, 5.6U K
D834	407 099 8007	ZENER DIODE MTZJ20C (20V)	L332	645 003 9713	INDUCTOR, 15U K

Schematic Location	Part No.	Description	Schematic Location	Part No.	Description
	645 016 2657	INDUCTOR, 15U K		405 011 8500	TR 2SC1740S-R
L341	645 008 2924	INDUCTOR, 8.2U K		405 011 8609	TR 2SC1740S-S
	645 016 3227	INDUCTOR, 8.2U K		405 012 2002	TR 2SC1815-GR
L401	645 017 7675	INDUCTOR, 3.3U, FILTER		405 012 2101	TR 2SC1815-0
L402	610 031 9998	PIPE CORE		405 012 2309	TR 2SC1815-Y
L403	610 078 6820	PIPE CORE		405 020 7501	TR 2SC945A-PA
★ L413	645 025 4406	COIL, LINEARITY		405 020 7709	TR 2SC945A-QA
	645 029 8035	COIL, LINEARITY		405 020 7907	TR 2SC945A-RA
L414	610 031 1367	INDUCTOR 202J	Q216	405 011 8401	TR 2SC1740S-Q
	610 211 3488	INDUCTOR	4-10	405 011 8500	TR 2SC1740S-R
L416	645 013 8676	INDUCTOR, 350U		405 011 8609	TR 2SC1740S-S
L601	610 078 6820	PIPE CORE		405 012 2002	TR 2SC1815-GR
L621	610 078 5946	PIPE CORE		405 012 2101	TR 2SC1815-0
L623	610 078 5946	PIPE CORE		405 012 2309	TR 2SC1815-Y
L625	610 078 5946	PIPE CORE		405 020 7501	TR 2SC945A-PA
L800	610 078 5946	PIPE CORE		405 020 7709	TR 2SC945A-QA
L801	645 008 2894	INDUCTOR, 5.6U K		405 020 7907	TR 2SC945A-RA
2001	645 016 3104	INDUCTOR, 5.6U K	Q222	405 011 8401	TR 2SC1740S-Q
L813	645 008 2894	INDUCTOR, 5.6U K	q	405 011 8500	TR 2SC1740S-R
2010	645 016 3104	INDUCTOR, 5.6U K		405 011 8609	TR 2SC1740S-S
L814	645 008 2894	INDUCTOR, 5.6U K		405 012 2002	TR 2SC1815-GR
LOTT	645 016 3104	INDUCTOR, 5.6U K		405 012 2101	TR 2SC1815-0
L821	645 008 2894	INDUCTOR, 5.6U K		405 012 2309	TR 2SC1815-Y
LOZI	645 016 3104	INDUCTOR, 5.6U K		405 020 7501	TR 2SC945A-PA
L851	645 008 2894	INDUCTOR, 5.6U K		405 020 7709	TR 2SC945A-QA
2001	645 016 3104	INDUCTOR, 5.6U K		405 020 7907	TR 2SC945A-RA
L863	645 008 2894	INDUCTOR, 5.6U K	Q225	406 000 6804	TR 2SA1015-GR(SAN)
2000	645 016 3104	INDUCTOR, 5.6U K	QLLU	405 001 7407	TR 2SA1015-O(SAN)
L881	645 008 2894	INDUCTOR, 5.6U K		405 001 7605	TR 2SA1015-Y(SAN)
2001	645 016 3104	INDUCTOR, 5.6U K		405 004 3109	TR 2SA564A-Q(CU)
L882	645 008 2894	INDUCTOR, 5.6U K		405 004 3103	TR 2SA564A-R(CU)
LUUL	645 016 3104	INDUCTOR, 5.6U K		405 006 1707	TR 2SA933S-Q
★ L901	645 030 7430	COIL, DEGAUSSING		405 006 1806	TR 2SA933S-R
L1901	645 008 2894	INDUCTOR, 5.6U K	Q226	406 000 6804	TR 2SA1015-GR(SAN)
21001	645 016 3104	INDUCTOR, 5.6U K	QLLO	405 001 7407	TR 2SA1015-O(SAN)
	040 010 0104	1112001011, 0.00 IX		405 001 7605	TR 2SA1015-Y(SAN)
				405 004 3109	TR 2SA564A-Q(CU)
	TRANSISTO	ORS		405 004 3208	TR 2SA564A-R(CU)
Q001	405 011 8401	TR 2SC1740S-Q		405 004 3200	TR 2SA933S-Q
QUU.	405 011 8500	TR 2SC1740S-R		405 006 1806	TR 2SA933S-R
	405 011 8609	TR 2SC1740S-S	Q301	405 011 8401	TR 2SC1740S-Q
	405 012 2002	TR 2SC1815-GR	Qoor	405 011 8500	TR 2SC1740S-R
	405 012 2101	TR 2SC1815-0		405 011 8609	TR 2SC1740S-S
	405 012 2309	TR 2SC1815-Y		405 012 2002	TR 2SC1815-GR
	405 020 7501	TR 2SC945A-PA		405 012 2101	TR 2SC1815-0
	405 020 7709	TR 2SC945A-QA		405 012 2309	TR 2SC1815-Y
	405 020 7907	TR 2SC945A-RA		405 020 7501	TR 2SC945A-PA
Q005	405 008 4805	TR 2SB764-E		405 020 7709	TR 2SC945A-QA
qooo	405 008 4904	TR 2SB764-F		405 020 7703	TR 2SC945A-RA
Q135	405 011 8401	TR 2SC1740S-Q	Q306	405 020 7507 405 011 8401	TR 2SC1740S-Q
Q100	405 011 8500	TR 2SC1740S-R	Q300	405 011 8500	TR 2SC1740S-R
	405 011 8609	TR 2SC1740S-S		405 011 8609	TR 2SC1740S-S
	405 012 2002	TR 2SC1815-GR		405 011 8009	TR 2SC17405-5 TR 2SC1815-GR
	405 012 2002	TR 2SC1815-0		405 012 2002	TR 2SC1815-GR
	405 012 2309	TR 2SC1815-Y			
	405 020 7501	TR 2SC945A-PA		405 012 2309	TR 2SC1815-Y
	405 020 7501	TR 2SC945A-PA TR 2SC945A-QA		405 020 7501	TR 2SC945A-PA
	405 020 7709	TR 2SC945A-QA TR 2SC945A-RA		405 020 7709	TR 2SC945A-QA
Q202	405 020 7907	TR 2SC1740S-Q	0207	405 020 7907	TR 2SC945A-RA
Q2U2	400 011 0401	IN 23017403-Q	Q307	406 000 6804	TR 2SA1015-GR(SAN)

Q307 (Cont.) 40 40 40 40 40 40 40 40 40 40 40 40 40 4	25 001 7407 25 001 7605 25 004 3109 25 004 3208 25 006 1707 25 006 1806 26 000 6804 25 001 7605 25 001 7605 25 001 7605 25 001 7605 25 001 7605 25 001 7605 25 001 806 25 011 8401 25 011 8500 25 012 2002 25 012 2101 25 012 2309 25 012 2309 25 020 7501 25 020 7709 25 020 7709 25 011 8401 25 011 8401 25 011 8500 25 012 2309 25 020 7709 25 010 8401 25 011 8401 25 011 8500 25 011 8401 25 011 8500 25 011 8609 25 011 8609 25 011 8609 25 011 8609 25 011 8609 25 011 8609 25 011 8609 25 011 8609 25 011 8609 25 011 8609 25 011 8609 25 011 8609 25 011 8609 25 011 8609 25 011 8609 25 011 8609 25 012 2002	TR 2SA1015-O(SAN) TR 2SA1015-Y(SAN) TR 2SA564A-Q(CU) TR 2SA564A-Q(CU) TR 2SA933S-Q TR 2SA933S-R TR 2SA1015-GR(SAN) TR 2SA1015-O(SAN) TR 2SA1015-Y(SAN) TR 2SA564A-Q(CU) TR 2SA564A-Q(CU) TR 2SA564A-Q(CU) TR 2SA933S-Q TR 2SA933S-Q TR 2SA933S-R TR 2SC1740S-Q TR 2SC1740S-S TR 2SC1815-O TR 2SC1815-O TR 2SC1815-Y TR 2SC945A-PA TR 2SC945A-PA TR 2SC945A-RA TR 2SC1740S-R TR 2SC1740S-R TR 2SC1740S-Q TR 2SC1740S-Q TR 2SC1740S-R	Q462 Q486 ★ Q601 Q604 Q605	405 011 8609 405 012 2002 405 012 2309 405 020 7501 405 020 7709 405 064 7307 405 064 7406 405 023 5009 405 023 5306 405 095 9004 405 058 0208 406 000 6804 405 001 7407 405 001 7605 405 004 3109 405 004 3208 405 006 1707 405 006 1806 405 089 0000 405 089 0109 405 009 6907 405 009 7003 405 011 8401 405 011 8500	TR 2SC1740S-S TR 2SC1815-GR TR 2SC1815-Y TR 2SC945A-PA TR 2SC945A-QA TR 2SB1274-Q-RA TR 2SB1274-R-RA TR 2SD400-E-MP TR 2SD400-F-MP TR 2SC4423-CTV TR 2SC3807-R-CTV-YA TR 2SA1015-GR(SAN) TR 2SA1015-Y(SAN) TR 2SA1015-Y(SAN) TR 2SA564A-Q(CU) TR 2SA933S-Q TR 2SA933S-Q TR 2SA933S-R TR 2SA1707-S TR 2SA1707-T TR 2SB985-S TR 2SB985-T TR 2SC1740S-Q
Q332 40 40 40 40 40 40 40 40 40 40 40 40 40 4	05 001 7605 05 004 3109 05 004 3208 05 006 1707 05 006 1806 06 000 6804 05 001 7605 05 004 3208 05 004 3208 05 004 3208 05 006 1707 05 006 1806 05 011 8401 05 012 2002 05 012 2101 05 012 2309 05 020 7501 05 020 7709 05 020 7907 05 011 8401 05 011 8401 05 012 8309 05 020 7709 05 020 7907 05 011 8401 05 011 8500 05 011 8401 05 011 8500 05 011 8609	TR 2SA1015-Y(SAN) TR 2SA564A-Q(CU) TR 2SA564A-R(CU) TR 2SA933S-Q TR 2SA933S-R TR 2SA1015-GR(SAN) TR 2SA1015-G(SAN) TR 2SA1015-Y(SAN) TR 2SA564A-Q(CU) TR 2SA564A-R(CU) TR 2SA564A-R(CU) TR 2SA933S-Q TR 2SA933S-R TR 2SC1740S-Q TR 2SC1740S-S TR 2SC1815-GR TR 2SC1815-O TR 2SC1815-Y TR 2SC945A-PA TR 2SC945A-PA TR 2SC945A-RA TR 2SC1740S-R	Q486 * Q601 Q604 Q605	405 012 2002 405 012 2309 405 020 7501 405 020 7709 405 064 7307 405 064 7406 405 023 5009 405 023 5306 405 095 9004 405 058 0208 406 000 6804 405 001 7407 405 001 7605 405 004 3109 405 004 3208 405 006 1707 405 006 1806 405 089 0000 405 089 0109 405 009 6907 405 009 7003 405 011 8401	TR 2SC1815-GR TR 2SC1815-Y TR 2SC945A-PA TR 2SC945A-QA TR 2SB1274-Q-RA TR 2SB1274-R-RA TR 2SD400-E-MP TR 2SC4423-CTV TR 2SC3807-R-CTV-YA TR 2SA1015-GR(SAN) TR 2SA1015-Y(SAN) TR 2SA564A-Q(CU) TR 2SA933S-Q TR 2SA933S-R TR 2SA1707-S TR 2SB985-S TR 2SB985-T
Q332 40 Q332 40 40 40 40 40 40 40 40 40 40 40 40 40 4	05 004 3109 05 004 3208 05 006 1707 05 006 1806 06 000 6804 05 001 7407 05 001 7605 05 004 3109 05 004 3208 05 006 1707 05 006 1806 05 011 8401 05 011 8609 05 012 2002 05 012 2101 05 020 7501 05 020 7709 05 020 7907 05 011 8401 05 011 8401 05 011 8401 05 011 8401 05 011 8401 05 011 8500 05 011 8401	TR 2SA564A-Q(CU) TR 2SA564A-R(CU) TR 2SA933S-Q TR 2SA933S-R TR 2SA1015-GR(SAN) TR 2SA1015-O(SAN) TR 2SA1015-V(SAN) TR 2SA564A-Q(CU) TR 2SA564A-R(CU) TR 2SA933S-Q TR 2SA933S-R TR 2SC1740S-Q TR 2SC1740S-S TR 2SC1815-O TR 2SC1815-Y TR 2SC945A-PA TR 2SC945A-PA TR 2SC945A-RA TR 2SC1740S-R TR 2SC1740S-Q TR 2SC945A-RA TR 2SC1740S-Q TR 2SC1740S-Q TR 2SC945A-RA TR 2SC1740S-R	Q486 * Q601 Q604 Q605	405 012 2309 405 020 7501 405 020 7709 405 064 7307 405 064 7406 405 023 5009 405 023 5306 405 095 9004 405 058 0208 406 000 6804 405 001 7407 405 001 7605 405 004 3109 405 004 3208 405 006 1707 405 006 1806 405 089 0000 405 089 0109 405 009 6907 405 009 7003 405 011 8401	TR 2SC1815-Y TR 2SC945A-PA TR 2SC945A-QA TR 2SB1274-Q-RA TR 2SB1274-R-RA TR 2SD400-E-MP TR 2SD400-F-MP TR 2SC4423-CTV TR 2SC3807-R-CTV-YA TR 2SA1015-GR(SAN) TR 2SA1015-Y(SAN) TR 2SA564A-Q(CU) TR 2SA933S-Q TR 2SA933S-R TR 2SA1707-S TR 2SB985-S TR 2SB985-T
Q332 40 40 40 40 40 40 40 40 40 40 40 40 40 4	05 004 3208 05 006 1707 05 006 1806 06 000 6804 05 001 7407 05 001 7605 05 004 3208 05 006 1707 05 006 1806 05 011 8401 05 012 2002 05 012 2101 05 012 2309 05 020 7501 05 020 7709 05 011 8401 05 011 8401 05 011 8401 05 011 8401 05 011 8401	TR 2SA564A-R(CU) TR 2SA933S-Q TR 2SA933S-R TR 2SA1015-GR(SAN) TR 2SA1015-O(SAN) TR 2SA1015-Y(SAN) TR 2SA564A-Q(CU) TR 2SA564A-R(CU) TR 2SA933S-Q TR 2SA933S-R TR 2SC1740S-R TR 2SC1740S-S TR 2SC1815-GR TR 2SC1815-O TR 2SC1815-Y TR 2SC945A-PA TR 2SC945A-PA TR 2SC945A-RA TR 2SC1740S-R	Q486 * Q601 Q604 Q605	405 020 7501 405 020 7709 405 064 7307 405 064 7406 405 023 5009 405 023 5306 405 095 9004 405 058 0208 406 000 6804 405 001 7407 405 001 7605 405 004 3109 405 004 3208 405 006 1707 405 006 1806 405 089 0000 405 089 0109 405 009 6907 405 009 7003 405 011 8401	TR 2SC945A-PA TR 2SC945A-QA TR 2SB1274-Q-RA TR 2SB1274-R-RA TR 2SD400-E-MP TR 2SC4423-CTV TR 2SC3807-R-CTV-YA TR 2SA1015-GR(SAN) TR 2SA1015-Y(SAN) TR 2SA564A-Q(CU) TR 2SA933S-Q TR 2SA933S-R TR 2SA1707-S TR 2SB985-S TR 2SB985-T
Q332 40 40 40 40 40 40 40 40 40 40 40 40 40 4	05 006 1707 05 006 1806 06 000 6804 05 001 7407 05 001 7605 05 004 3109 05 004 3208 05 006 1707 05 006 1806 05 011 8401 05 011 8609 05 012 2002 05 012 2101 05 012 2309 05 020 7501 05 020 7709 05 020 7907 05 011 8401 05 011 8401 05 011 8401 05 011 8401	TR 2SA933S-Q TR 2SA933S-R TR 2SA1015-GR(SAN) TR 2SA1015-O(SAN) TR 2SA1015-Y(SAN) TR 2SA564A-Q(CU) TR 2SA564A-R(CU) TR 2SA933S-Q TR 2SA933S-R TR 2SC1740S-Q TR 2SC1740S-P TR 2SC1815-Y TR 2SC1815-Y TR 2SC945A-PA TR 2SC945A-PA TR 2SC945A-RA TR 2SC1740S-Q TR 2SC1740S-Q TR 2SC1740S-R	Q486 * Q601 Q604 Q605	405 020 7709 405 064 7307 405 064 7406 405 023 5009 405 023 5306 405 095 9004 405 058 0208 406 000 6804 405 001 7407 405 001 7605 405 004 3109 405 006 1707 405 006 1806 405 089 0000 405 089 0109 405 009 6907 405 009 7003 405 011 8401	TR 2SC945A-QA TR 2SB1274-Q-RA TR 2SB1274-R-RA TR 2SD400-E-MP TR 2SD400-F-MP TR 2SC4423-CTV TR 2SC3807-R-CTV-YA TR 2SA1015-GR(SAN) TR 2SA1015-Y(SAN) TR 2SA564A-Q(CU) TR 2SA564A-R(CU) TR 2SA933S-Q TR 2SA933S-R TR 2SA1707-S TR 2SB985-S TR 2SB985-T
Q332 40 40 40 40 40 Q341 40 40 40 40 40 40 40 40 40 40 40 40 40 4	05 006 1806 06 000 6804 05 001 7407 05 001 7605 05 004 3109 05 004 3208 05 006 1707 05 006 1806 05 011 8401 05 011 8609 05 012 2002 05 012 2101 05 012 2309 05 020 7501 05 020 7709 05 020 7907 05 011 8401 05 011 8401 05 011 8500 05 011 8609	TR 2SA933S-R TR 2SA1015-GR(SAN) TR 2SA1015-O(SAN) TR 2SA1015-Y(SAN) TR 2SA564A-Q(CU) TR 2SA564A-R(CU) TR 2SA933S-Q TR 2SA933S-R TR 2SC1740S-R TR 2SC1740S-S TR 2SC1815-GR TR 2SC1815-O TR 2SC1815-Y TR 2SC945A-PA TR 2SC945A-PA TR 2SC945A-RA TR 2SC1740S-Q TR 2SC1740S-Q TR 2SC1740S-PA	Q486 * Q601 Q604 Q605	405 064 7307 405 064 7406 405 023 5009 405 023 5306 405 095 9004 405 058 0208 406 000 6804 405 001 7407 405 001 7605 405 004 3109 405 004 3208 405 006 1707 405 006 1806 405 089 0000 405 089 0109 405 009 6907 405 009 7003 405 011 8401	TR 2SB1274-Q-RA TR 2SB1274-R-RA TR 2SD400-E-MP TR 2SD400-F-MP TR 2SC4423-CTV TR 2SC3807-R-CTV-YA TR 2SA1015-GR(SAN) TR 2SA1015-Y(SAN) TR 2SA564A-Q(CU) TR 2SA564A-R(CU) TR 2SA933S-Q TR 2SA933S-R TR 2SA1707-S TR 2SB985-S TR 2SB985-T
Q332 40 40 40 40 40 40 40 40 40 40 40 40 40	06 000 6804 05 001 7407 05 001 7605 05 004 3109 05 004 3208 05 006 1707 05 006 1806 05 011 8401 05 011 8609 05 012 2002 05 012 2101 05 012 2309 05 020 7501 05 020 7709 05 020 7907 05 011 8401 05 011 8500 05 011 8609	TR 2SA1015-GR(SAN) TR 2SA1015-O(SAN) TR 2SA1015-Y(SAN) TR 2SA564A-Q(CU) TR 2SA564A-R(CU) TR 2SA933S-Q TR 2SA933S-R TR 2SC1740S-Q TR 2SC1740S-S TR 2SC1815-GR TR 2SC1815-Y TR 2SC945A-PA TR 2SC945A-PA TR 2SC945A-RA TR 2SC1740S-R	Q486 * Q601 Q604 Q605	405 064 7406 405 023 5009 405 023 5306 405 095 9004 405 058 0208 406 000 6804 405 001 7407 405 001 7605 405 004 3109 405 004 3208 405 006 1707 405 006 1806 405 089 0000 405 089 0109 405 009 6907 405 009 7003 405 011 8401	TR 2SB1274-R-RA TR 2SD400-E-MP TR 2SD400-F-MP TR 2SC4423-CTV TR 2SC3807-R-CTV-YA TR 2SA1015-GR(SAN) TR 2SA1015-Y(SAN) TR 2SA564A-Q(CU) TR 2SA564A-R(CU) TR 2SA933S-Q TR 2SA933S-R TR 2SA1707-S TR 2SB985-S TR 2SB985-T
40 40 40 40 40 40 40 40 40 40 40 40 40 4	05 001 7407 05 001 7605 05 004 3109 05 004 3208 05 006 1707 05 006 1806 05 011 8401 05 011 8609 05 012 2002 05 012 2101 05 012 2309 05 020 7501 05 020 7709 05 020 7907 05 011 8401 05 011 8500 05 011 8609	TR 2SA1015-O(SAN) TR 2SA1015-Y(SAN) TR 2SA564A-Q(CU) TR 2SA564A-R(CU) TR 2SA933S-Q TR 2SA933S-R TR 2SC1740S-Q TR 2SC1740S-S TR 2SC1815-GR TR 2SC1815-O TR 2SC1815-Y TR 2SC945A-PA TR 2SC945A-PA TR 2SC945A-RA TR 2SC1740S-R	★ Q601 Q604 Q605	405 023 5009 405 023 5306 405 095 9004 405 058 0208 406 000 6804 405 001 7407 405 001 7605 405 004 3109 405 004 3208 405 006 1707 405 006 1806 405 089 0000 405 089 0109 405 009 6907 405 009 7003 405 011 8401	TR 2SD400-E-MP TR 2SD400-F-MP TR 2SC4423-CTV TR 2SC3807-R-CTV-YA TR 2SA1015-GR(SAN) TR 2SA1015-O(SAN) TR 2SA1015-Y(SAN) TR 2SA564A-Q(CU) TR 2SA564A-R(CU) TR 2SA933S-Q TR 2SA933S-R TR 2SA1707-S TR 2SA1707-T TR 2SB985-S TR 2SB985-T
Q341 40 40 40 40 40 40 40 40 40 40 40 40 40 4	05 001 7605 05 004 3109 05 004 3208 05 006 1707 05 006 1806 05 011 8401 05 011 8500 05 012 2002 05 012 2101 05 012 2309 05 020 7501 05 020 7709 05 020 7907 05 011 8401 05 011 8500 05 011 8609	TR 2SA1015-Y(SAN) TR 2SA564A-Q(CU) TR 2SA564A-R(CU) TR 2SA933S-Q TR 2SA933S-R TR 2SC1740S-Q TR 2SC1740S-S TR 2SC1815-GR TR 2SC1815-Y TR 2SC945A-PA TR 2SC945A-PA TR 2SC945A-RA TR 2SC1740S-R	★ Q601 Q604 Q605	405 023 5306 405 095 9004 405 058 0208 406 000 6804 405 001 7407 405 001 7605 405 004 3109 405 004 3208 405 006 1707 405 006 1806 405 089 0000 405 089 0109 405 009 6907 405 009 7003 405 011 8401	TR 2SD400-F-MP TR 2SC4423-CTV TR 2SC3807-R-CTV-YA TR 2SA1015-GR(SAN) TR 2SA1015-O(SAN) TR 2SA1015-Y(SAN) TR 2SA564A-Q(CU) TR 2SA564A-R(CU) TR 2SA933S-Q TR 2SA933S-R TR 2SA1707-S TR 2SB985-S TR 2SB985-T
Q341 40 40 40 40 Q342 40 40 40 40 40 40 40 40 40 40 40 40 40	05 004 3109 05 004 3208 05 006 1707 05 006 1806 05 011 8401 05 011 8609 05 012 2002 05 012 2101 05 012 2309 05 020 7501 05 020 7709 05 020 7907 05 011 8401 05 011 8500 05 011 8609	TR 2SA564A-Q(CU) TR 2SA564A-R(CU) TR 2SA933S-Q TR 2SA933S-R TR 2SC1740S-Q TR 2SC1740S-S TR 2SC1815-GR TR 2SC1815-Y TR 2SC945A-PA TR 2SC945A-PA TR 2SC945A-RA TR 2SC1740S-R	Q604 Q605 Q627	405 095 9004 405 058 0208 406 000 6804 405 001 7407 405 001 7605 405 004 3109 405 004 3208 405 006 1707 405 006 1806 405 089 0000 405 089 0109 405 009 6907 405 009 7003 405 011 8401	TR 2SC4423-CTV TR 2SC3807-R-CTV-YA TR 2SA1015-GR(SAN) TR 2SA1015-O(SAN) TR 2SA1015-Y(SAN) TR 2SA564A-Q(CU) TR 2SA564A-R(CU) TR 2SA933S-Q TR 2SA933S-R TR 2SA1707-S TR 2SA1707-T TR 2SB985-S TR 2SB985-T
Q341 40 40 40 40 40 40 40 40 40 40 40 40 40 4	05 004 3208 05 006 1707 05 006 1806 05 011 8401 05 011 8500 05 012 2002 05 012 2101 05 012 2309 05 020 7501 05 020 7709 05 020 7907 05 011 8401 05 011 8500 05 011 8609	TR 2SA564A-R(CU) TR 2SA933S-Q TR 2SA933S-R TR 2SC1740S-Q TR 2SC1740S-R TR 2SC1740S-S TR 2SC1815-GR TR 2SC1815-O TR 2SC1815-Y TR 2SC945A-PA TR 2SC945A-PA TR 2SC945A-RA TR 2SC1740S-Q TR 2SC1740S-R	Q604 Q605 Q627	405 058 0208 406 000 6804 405 001 7407 405 001 7605 405 004 3109 405 004 3208 405 006 1707 405 006 1806 405 089 0000 405 089 0109 405 009 6907 405 009 7003 405 011 8401	TR 2SC3807-R-CTV-YA TR 2SA1015-GR(SAN) TR 2SA1015-O(SAN) TR 2SA1015-Y(SAN) TR 2SA564A-Q(CU) TR 2SA564A-R(CU) TR 2SA933S-Q TR 2SA933S-R TR 2SA1707-S TR 2SA1707-T TR 2SB985-S TR 2SB985-T
Q341 40 40 40 40 40 40 40 40 40 40 40 40 40 4	05 006 1707 05 006 1806 05 011 8401 05 011 8500 05 011 8609 05 012 2002 05 012 2101 05 012 2309 05 020 7501 05 020 7709 05 020 7907 05 011 8401 05 011 8500 05 011 8609	TR 2SA933S-Q TR 2SA933S-R TR 2SC1740S-Q TR 2SC1740S-R TR 2SC1740S-S TR 2SC1815-GR TR 2SC1815-O TR 2SC1815-Y TR 2SC945A-PA TR 2SC945A-QA TR 2SC945A-RA TR 2SC1740S-Q TR 2SC1740S-R	Q605 Q627	406 000 6804 405 001 7407 405 001 7605 405 004 3109 405 004 3208 405 006 1707 405 006 1806 405 089 0000 405 089 0109 405 009 6907 405 009 7003 405 011 8401	TR 2SA1015-GR(SAN) TR 2SA1015-O(SAN) TR 2SA1015-Y(SAN) TR 2SA564A-Q(CU) TR 2SA564A-R(CU) TR 2SA933S-Q TR 2SA933S-R TR 2SA1707-S TR 2SA1707-T TR 2SB985-S TR 2SB985-T
Q341 40 40 40 40 Q342 40 40 40 40 40 40 40 40 40 40 40 40 40	05 006 1806 05 011 8401 05 011 8500 05 011 8609 05 012 2002 05 012 2101 05 012 2309 05 020 7501 05 020 7709 05 020 7907 05 011 8401 05 011 8500 05 011 8609	TR 2SA933S-R TR 2SC1740S-Q TR 2SC1740S-R TR 2SC1740S-S TR 2SC1815-GR TR 2SC1815-O TR 2SC1815-Y TR 2SC945A-PA TR 2SC945A-QA TR 2SC945A-RA TR 2SC1740S-Q TR 2SC1740S-R	Q627	405 001 7407 405 001 7605 405 004 3109 405 004 3208 405 006 1707 405 006 1806 405 089 0000 405 089 0109 405 009 6907 405 009 7003 405 011 8401	TR 2SA1015-O(SAN) TR 2SA1015-Y(SAN) TR 2SA564A-Q(CU) TR 2SA564A-R(CU) TR 2SA933S-Q TR 2SA933S-R TR 2SA1707-S TR 2SA1707-T TR 2SB985-S TR 2SB985-T
Q341 40 40 40 40 40 Q342 40 40 40 40 40 40	05 011 8401 05 011 8500 05 011 8609 05 012 2002 05 012 2101 05 012 2309 05 020 7501 05 020 7709 05 020 7907 05 011 8401 05 011 8500 05 011 8609	TR 2SC1740S-Q TR 2SC1740S-R TR 2SC1740S-S TR 2SC1815-GR TR 2SC1815-O TR 2SC1815-Y TR 2SC945A-PA TR 2SC945A-QA TR 2SC945A-RA TR 2SC1740S-Q TR 2SC1740S-R		405 001 7605 405 004 3109 405 004 3208 405 006 1707 405 006 1806 405 089 0000 405 089 0109 405 009 6907 405 009 7003 405 011 8401	TR 2SA1015-Y(SAN) TR 2SA564A-Q(CU) TR 2SA564A-R(CU) TR 2SA933S-Q TR 2SA933S-R TR 2SA1707-S TR 2SA1707-T TR 2SB985-S TR 2SB985-T
40 40 40 40 40 40 40 Q342 40 40	05 011 8500 05 011 8609 05 012 2002 05 012 2101 05 012 2309 05 020 7501 05 020 7709 05 020 7907 05 011 8401 05 011 8500 05 011 8609	TR 2SC1740S-R TR 2SC1740S-S TR 2SC1815-GR TR 2SC1815-O TR 2SC1815-Y TR 2SC945A-PA TR 2SC945A-QA TR 2SC945A-RA TR 2SC1740S-Q TR 2SC1740S-R		405 004 3109 405 004 3208 405 006 1707 405 006 1806 405 089 0000 405 089 0109 405 009 6907 405 009 7003 405 011 8401	TR 2SA564A-Q(CU) TR 2SA564A-R(CU) TR 2SA933S-Q TR 2SA933S-R TR 2SA1707-S TR 2SA1707-T TR 2SB985-S TR 2SB985-T
40 40 40 40 40 40 Q342 40 40 40	05 011 8609 05 012 2002 05 012 2101 05 012 2309 05 020 7501 05 020 7709 05 020 7907 05 011 8401 05 011 8500 05 011 8609	TR 2SC1740S-S TR 2SC1815-GR TR 2SC1815-O TR 2SC1815-Y TR 2SC945A-PA TR 2SC945A-QA TR 2SC945A-RA TR 2SC1740S-Q TR 2SC1740S-R		405 004 3208 405 006 1707 405 006 1806 405 089 0000 405 089 0109 405 009 6907 405 009 7003 405 011 8401	TR 2SA564A-R(CU) TR 2SA933S-Q TR 2SA933S-R TR 2SA1707-S TR 2SA1707-T TR 2SB985-S TR 2SB985-T
40 40 40 40 40 40 Q342 40 40 40	05 012 2002 05 012 2101 05 012 2309 05 020 7501 05 020 7709 05 020 7907 05 011 8401 05 011 8500 05 011 8609	TR 2SC1815-GR TR 2SC1815-O TR 2SC1815-Y TR 2SC945A-PA TR 2SC945A-QA TR 2SC945A-RA TR 2SC1740S-Q TR 2SC1740S-R		405 006 1707 405 006 1806 405 089 0000 405 089 0109 405 009 6907 405 009 7003 405 011 8401	TR 2SA933S-Q TR 2SA933S-R TR 2SA1707-S TR 2SA1707-T TR 2SB985-S TR 2SB985-T
40 40 40 40 40 Q342 40 40 40	05 012 2101 05 012 2309 05 020 7501 05 020 7709 05 020 7907 05 011 8401 05 011 8500 05 011 8609	TR 2SC1815-0 TR 2SC1815-Y TR 2SC945A-PA TR 2SC945A-QA TR 2SC945A-RA TR 2SC1740S-Q TR 2SC1740S-R		405 006 1806 405 089 0000 405 089 0109 405 009 6907 405 009 7003 405 011 8401	TR 2SA933S-R TR 2SA1707-S TR 2SA1707-T TR 2SB985-S TR 2SB985-T
40 40 40 40 Q342 40 40 40	05 012 2309 05 020 7501 05 020 7709 05 020 7907 05 011 8401 05 011 8500 05 011 8609	TR 2SC1815-Y TR 2SC945A-PA TR 2SC945A-QA TR 2SC945A-RA TR 2SC1740S-Q TR 2SC1740S-R		405 089 0000 405 089 0109 405 009 6907 405 009 7003 405 011 8401	TR 2SA1707-S TR 2SA1707-T TR 2SB985-S TR 2SB985-T
40 40 40 Q342 40 40 40	05 020 7501 05 020 7709 05 020 7907 05 011 8401 05 011 8500 05 011 8609	TR 2SC945A-PA TR 2SC945A-QA TR 2SC945A-RA TR 2SC1740S-Q TR 2SC1740S-R		405 089 0109 405 009 6907 405 009 7003 405 011 8401	TR 2SA1707-T TR 2SB985-S TR 2SB985-T
40 40 Q342 40 40 40	05 020 7709 05 020 7907 05 011 8401 05 011 8500 05 011 8609	TR 2SC945A-QA TR 2SC945A-RA TR 2SC1740S-Q TR 2SC1740S-R		405 009 6907 405 009 7003 405 011 8401	TR 2SB985-S TR 2SB985-T
Q342 40 40 40 40 40	05 020 7907 05 011 8401 05 011 8500 05 011 8609	TR 2SC945A-RA TR 2SC1740S-Q TR 2SC1740S-R	Q635	405 009 7003 405 011 8401	TR 2SB985-T
Q342 40 40 40 40	05 011 8401 05 011 8500 05 011 8609	TR 2SC1740S-Q TR 2SC1740S-R	Q635	405 011 8401	
40 40 40	05 011 8500 05 011 8609	TR 2SC1740S-R	Q635		TR 2SC1740S-Q
40 40 40	05 011 8609	TR 2SC1740S-R			
40		TR 2SC1740S-S			TR 2SC1740S-R
	NE 012 2002			405 011 8609	TR 2SC1740S-S
	JJ U 12 2002	TR 2SC1815-GR		405 012 2002	TR 2SC1815-GR
	05 012 2101	TR 2SC1815-0		405 012 2101	TR 2SC1815-0
40	05 012 2309	TR 2SC1815-Y		405 012 2309	TR 2SC1815-Y
	05 020 7501	TR 2SC945A-PA		405 020 7501	TR 2SC945A-PA
40	05 020 7709	TR 2SC945A-QA		405 020 7709	TR 2SC945A-QA
40	05 020 7907	TR 2SC945A-RA		405 020 7907	TR 2SC945A-RA
	05 011 8401	TR 2SC1740S-Q	Q681	405 011 8401	TR 2SC1740S-Q
	05 011 8500	TR 2SC1740S-R		405 011 8500	TR 2SC1740S-R
40	05 011 8609	TR 2SC1740S-S		405 011 8609	TR 2SC1740S-S
40	05 012 2002	TR 2SC1815-GR		405 012 2002	TR 2SC1815-GR
40	05 012 2101	TR 2SC1815-0		405 012 2101	TR 2SC1815-0
40	05 012 2309	TR 2SC1815-Y		405 012 2309	TR 2SC1815-Y
40	05 020 7501	TR 2SC945A-PA		405 020 7501	TR 2SC945A-PA
40	05 020 7709	TR 2SC945A-QA		405 020 7709	TR 2SC945A-QA
40	05 020 7907	TR 2SC945A-RA		405 020 7907	TR 2SC945A-RA
	06 000 6804	TR 2SA1015-GR(SAN)	Q688	406 000 6804	TR 2SA1015-GR(SAN)
	05 001 7407	TR 2SA1015-O(SAN)	• ·	405 001 7605	TR 2SA1015-Y(SAN)
	05 001 7605	TR 2SA1015-Y(SAN)		405 004 3208	TR 2SA564A-R(CU)
	05 004 3109	TR 2SA564A-Q(CU)		405 006 1806	TR 2SA933S-R
	05 004 3208	TR 2SA564A-R(CU)	Q693	405 011 8401	TR 2SC1740S-Q
	05 006 1707	TR 2SA933S-Q	•	405 011 8500	TR 2SC1740S-R
	05 006 1806	TR 2SA933S-R		405 011 8609	TR 2SC1740S-S
	06 000 6804	TR 2SA1015-GR(SAN)		405 012 2002	TR 2SC1815-GR
	05 001 7407	TR 2SA1015-O(SAN)		405 012 2101	TR 2SC1815-0
	05 001 7605	TR 2SA1015-Y(SAN)		405 012 2309	TR 2SC1815-Y
	05 004 3109	TR 2SA564A-Q(CU)		405 020 7501	TR 2SC945A-PA
	05 004 3208	TR 2SA564A-R(CU)		405 020 7709	TR 2SC945A-QA
	05 004 3200	TR 2SA933S-Q		405 020 7907	TR 2SC945A-RA
	05 006 1806	TR 2SA933S-R	Q695	405 001 7605	TR 2SA1015-Y(SAN)
	05 013 6207	TR 2SC2271-D-CTV	4000	405 004 3208	TR 2SA564A-R(CU)
	05 013 6306	TR 2SC2271-E-CTV		405 004 4809	TR 2SA608-F-CTV-NP
	05 082 2407	TR 2SD1879-CTV-YB	Q701	406 000 3605	TR 2SC3620(LB-SAN-1)
)5 002 2407)5 011 8401	TR 2SC1740S-Q	۷,01	405 066 4304	TR 2SC2621-C-RA
)5 011 8500	TR 2SC1740S-R		405 041 6507	TR 2SC2621-D-RA

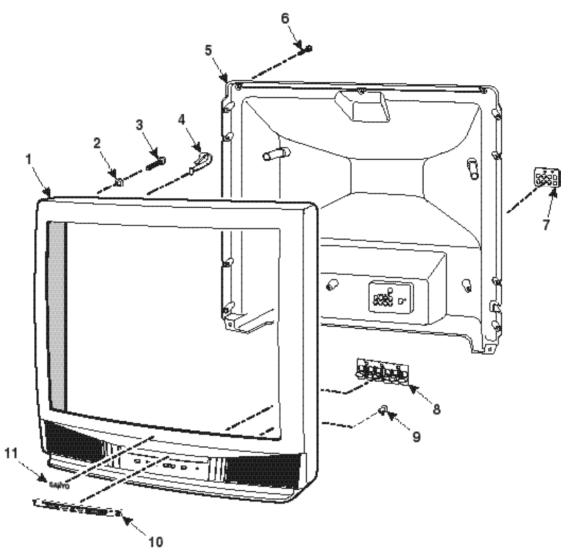
] []	Ι	1	
Schematic Location	Part No.	Description	Schematic Location	Part No.	Des	cription
	405 041 6705	TR 2SC2621-E-RA	_			
	405 066 9903	TR 2SC2688(1)-K				
	405 067 0008	TR 2SC2688(1)-L				
	405 067 0107	TR 2SC2688(1)-M		DECICTORS		
Q703	406 000 3605	TR 2SC3620(LB-SAN-1)		RESISTORS		
·	405 066 4304	TR 2SC2621-C-RA	NOTES:			
	405 041 6507	TR 2SC2621-D-RA	Read descripti	on of the Resistor a	is follows:	
	405 041 6705	TR 2SC2621-E-RA	(Example)			
	405 066 9903	TR 2SC2688(1)-K	CARBON	4.7K J A 1	/4W	
	405 067 0008	TR 2SC2688(1)-L		\top T T $\overline{}$	T	
	405 067 0107	TR 2SC2688(1)-M			└─ Rated W	attage
Q705	406 000 3605	TR 2SC3620(LB-SAN-1)			orformonos (Symbolo
	405 066 4304	TR 2SC2621-C-RA			erformance S	Non-flammable
	405 041 6507	TR 2SC2621-D-RA			Low noise	
	405 041 6705	TR 2SC2621-E-RA		0	therTempe	rature coeffi-
	405 066 9903	TR 2SC2688(1)-K	cient			
	405 067 0008	TR 2SC2688(1)-L		Tolor	ance Symbo	lei
	405 067 0107	TR 2SC2688(1)-M			05%B0.1%	
Q721	406 000 6804	TR 2SA1015-GR(SAN)				G2%
	405 001 7407	TR 2SA1015-O(SAN)		J59		M20%
	405 001 7605	TR 2SA1015-Y(SAN)		P+5	5 -15%	
	405 004 3109	TR 2SA564A-Q(CU)		Pated V	alue, ohms:	
	405 004 3208	TR 2SA564A-R(CU)		K1,000	•	000
	405 006 1707	TR 2SA933S-Q				5,000
	405 006 1806	TR 2SA933S-R		Material:		
Q831	406 000 6804	TR 2SA1015-GR(SAN)			Carbo	
	405 001 7407	TR 2SA1015-O(SAN)			Metal	
	405 001 7605	TR 2SA1015-Y(SAN)			Comp	
	405 004 3109	TR 2SA564A-Q(CU)			Metal	
	405 004 3208	TR 2SA564A-R(CU)			NDWire	
	405 006 1707	TR 2SA933S-Q			ESCeran	
	405 006 1806	TR 2SA933S-R		FUSIBLE RE	SFusibl	е
Q881	405 011 8401	TR 2SC1740S-Q				
	405 011 8500	TR 2SC1740S-R	R001	401 039 0413	MT-GLAZE	8.2K JA 1/10W
	405 011 8609	TR 2SC1740S-S	R002	401 039 0413	MT-GLAZE	8.2K JA 1/10W
	405 012 2002	TR 2SC1815-GR	R003	401 037 9210	MT-GLAZE	1.8K JA 1/10W
	405 012 2101	TR 2SC1815-0	R004	401 037 9210	MT-GLAZE	1.8K JA 1/10W
	405 012 2309	TR 2SC1815-Y	R005	401 037 5618	MT-GLAZE	10K JA 1/10W
	405 020 7501	TR 2SC945A-PA	R006	401 023 1706	CARBON	820 JA 1/4W
	405 020 7709	TR 2SC945A-QA	R012	401 027 2600	CARBON	5.6K JA 1/6W
	405 020 7907	TR 2SC945A-RA	★ R101	401 061 1706	OXIDE-MT	33 JA 1W
Q882	405 011 8401	TR 2SC1740S-Q	R106	401 009 2000	CARBON	27K JA 1/2W
	405 011 8500	TR 2SC1740S-R	R133	401 037 6714	MT-GLAZE	1.2K JA 1/10W
	405 011 8609	TR 2SC1740S-S	R136	401 025 4200	CARBON	1.8K JA 1/6W
	405 012 2002	TR 2SC1815-GR	R137	401 038 9011	MT-GLAZE	680 JA 1/10W
	405 012 2101	TR 2SC1815-0	R138	401 037 5212	MT-GLAZE	100 JA 1/10W
	405 012 2309	TR 2SC1815-Y	R142	401 038 3712	MT-GLAZE	33K JA 1/10W
	405 020 7501	TR 2SC945A-PA	R143	401 037 5410	MT-GLAZE	1K JA 1/10W
	405 020 7709	TR 2SC945A-QA	R151	401 025 1308	CARBON	150 JA 1/6W
	405 020 7907	TR 2SC945A-RA	R159	401 025 7409	CARBON	220 JA 1/6W
Q1071	405 011 8401	TR 2SC1740S-Q	R161	401 037 9418	MT-GLAZE	180K JA 1/10W
	405 011 8500	TR 2SC1740S-R	R162	401 038 0919	MT-GLAZE	220K JA 1/10W
	405 011 8609	TR 2SC1740S-S	R163	401 037 7810	MT-GLAZE	150 JA 1/10W
	405 012 2002	TR 2SC1815-GR	R164	401 024 7004	CARBON	1K JA 1/6W
	405 012 2101	TR 2SC1815-0	R167	401 025 2305	CARBON	150K JA 1/6W
	405 012 2309	TR 2SC1815-Y	R168	401 038 2319	MT-GLAZE	270K JA 1/10W
	405 020 7501	TR 2SC945A-PA	R169	401 037 5410	MT-GLAZE	1K JA 1/10W
	405 020 7709	TR 2SC945A-QA	R202	401 024 7004	CARBON	1K JA 1/6W
	405 020 7907	TR 2SC945A-RA	R207	401 037 5410	MT-GLAZE	1K JA 1/10W

Schematic Location	Part No.	Des	cription	Schematic Location	Part No.	Des	scription	
R212	401 037 5816	MT-GLAZE	1M JA 1/10W	R426	401 038 9011	MT-GLAZE	680 JA	1/10W
R216	401 037 5618	MT-GLAZE	10K JA 1/10W	R428	401 025 1902	CARBON	15K JA	
R217	401 027 5908	CARBON	68K JA 1/6W	R460	401 026 9303	CARBON	47 JA	
R221	401 037 5212	MT-GLAZE	100 JA 1/10W	R461	401 026 0607	CARBON	270 JA	
R222	401 037 5410	MT-GLAZE	1K JA 1/10W	R467	401 010 8305	CARBON	5.6K JA	
R223	401 038 0711	MT-GLAZE	2.2K JA 1/10W	R468	401 027 5205	CARBON	680 JA	
R224	401 037 5410	MT-GLAZE	1K JA 1/10W	R471	401 027 5205	CARBON	680 JA	
R225	401 037 5410	MT-GLAZE	1K JA 1/10W	R473	401 027 3003	CARBON	56K JA	
R226	401 037 5410	MT-GLAZE	1K JA 1/10W	R474	401 025 4903	CARBON	180K JA	
R251	401 038 9219	MT-GLAZE	6.8K JA 1/10W	R475	401 027 5205	CARBON	680 JA	
R252	401 038 2111	MT-GLAZE	2.7K JA 1/10W	★ R481	401 009 4905	CARBON	33 JB	1/2W
R271	401 038 0810	MT-GLAZE	22K JA 1/10W	★ R482	401 011 9004	CARBON	1 JB	1/4W
R272	401 038 3613	MT-GLAZE	3.3K JA 1/10W	★ R483	401 006 7701	CARBON	1 JB	1/2W
R273	401 037 5618	MT-GLAZE	10K JA 1/10W	R485	401 037 9319	MT-GLAZE	18K JA	
R276	401 037 6813	MT-GLAZE	12K JA 1/10W	★ R486	401 065 1801	OXIDE-MT	12 JA	2W
R281	401 038 3613	MT-GLAZE	3.3K JA 1/10W	R487	401 026 6609	CARBON	390 JA	1/6W
R287	401 037 9111	MT-GLAZE	180 JA 1/10W	★ R489	401 061 5308	OXIDE-MT	39 JA	1W
R288	401 037 9111	MT-GLAZE	180 JA 1/10W	R491	401 012 5708	CARBON	1K JA	
R289	401 037 9111	MT-GLAZE	180 JA 1/10W	R492	401 097 3903	MT-FILM	39K FA	
R301	401 037 5410	MT-GLAZE	1K JA 1/10W	R493	401 018 5801	CARBON	330K JA	
R302	401 037 7919	MT-GLAZE	1.5K JA 1/10W	R494	401 018 5801	CARBON	330K JA	
R303	401 038 7710	MT-GLAZE	5.6K JA 1/10W	★ R497	401 057 9105	OXIDE-MT	1.2 JA	1W
R305	401 037 5212	MT-GLAZE	100 JA 1/10W	★ R498	401 011 4306	CARBON	8.2 JA	
R306	401 024 7004	CARBON	1K JA 1/6W	R503	401 027 5502	CARBON	6.8K JA	
R307	401 037 7919	MT-GLAZE	1.5K JA 1/10W	R504	401 027 8602	CARBON	8.2K JA	
R308	401 037 5410	MT-GLAZE	1K JA 1/10W	R505	401 006 8104	CARBON	1.2 JA	
R309	401 027 5205	CARBON	680 JA 1/6W	R506	401 027 5205	CARBON	680 JA	
★ R310	401 010 2501	CARBON	47 JA 1/2W	R507	401 006 7602	CARBON	1 JA	
★ R311	401 010 2501	CARBON	47 JA 1/2W	R508	401 025 1902	CARBON	15K JA	1/6W
R312	401 039 0314	MT-GLAZE	820 JA 1/10W	R509	401 026 9907	CARBON	4.7K JA	
R332	401 038 9011	MT-GLAZE	680 JA 1/10W	★ R511	401 060 7402	OXIDE-MT	270 JA	1W
R333	401 037 7919	MT-GLAZE	1.5K JA 1/10W	R517	401 025 4606	CARBON	18K JA	1/6W
R334	401 024 7004	CARBON	1K JA 1/6W	R518	401 037 9319	MT-GLAZE	18K JA	
R341	401 024 7004	CARBON	1K JA 1/6W	★ R601	402 064 2905	WIRE WOUN	ND 1 KA	7W
R342	401 024 7004	CARBON	1K JA 1/6W		402 072 3000	WIRE WOUN		7W
R343	401 038 0711	MT-GLAZE	2.2K JA 1/10W	★ R602	402 000 0705	SOLID	3.3M KA	1/2W
R347	401 037 5618	MT-GLAZE	10K JA 1/10W	R603	401 007 2309	CARBON	100K JA	1/2W
R348	401 037 5618	MT-GLAZE	10K JA 1/10W	★ R606	401 068 6209	OXIDE-MT	5.6 JA	2W
R349	401 024 7004	CARBON	1K JA 1/6W	★ R613	401 068 6902	OXIDE-MT	56 JA	2W
R351	401 026 9600	CARBON	470 JA 1/6W	R614	401 011 1107	CARBON	68 JA	1/2W
R352	401 038 2319	MT-GLAZE	270K JA 1/10W	R615	401 014 5201	CARBON	15K JA	1/4W
R353	401 024 7400	CARBON	10K JA 1/6W	R616	401 026 4209	CARBON	3.3K GA	1/6W
R371	401 037 5618	MT-GLAZE	10K JA 1/10W	R617	401 024 6908	CARBON	1K GA	1/6W
R372	401 038 3712	MT-GLAZE	33K JA 1/10W	★ R618	401 068 6902	OXIDE-MT	56 JA	2W
R373	401 038 9417	MT-GLAZE	680K JA 1/10W	R619	401 025 8208	CARBON	22K JA	1/6W
R376	401 038 7819	MT-GLAZE	56K JA 1/10W	R623	401 038 7710	MT-GLAZE	5.6K JA	1/10W
R377	401 038 7710	MT-GLAZE	5.6K JA 1/10W	R621	401 026 9907	CARBON	4.7K JA	1/6W
R400	401 038 3811	MT-GLAZE	330K JA 1/10W	R622	401 026 0904	CARBON	2.7K GA	1/6W
R401	401 017 0807	CARBON	270 JA 1/4W	R627	401 037 5618	MT-GLAZE	10K JA	1/10W
R403	401 038 2111	MT-GLAZE	2.7K JA 1/10W	R628	401 013 5301	CARBON	1.2K JA	1/4W
R404	401 026 3905	CARBON	330 JA 1/6W	R629	401 037 5410	MT-GLAZE		1/10W
R406	401 010 8305	CARBON	5.6K JA 1/2W	★ R630	401 060 5002	OXIDE-MT	22K JA	1W
★ R407	401 068 4700	OXIDE-MT	4.7K JA 2W	R631	401 022 3107	CARBON	6.8K JA	1/4W
★ R413	402 067 3305	WIRE WOUN	D 4.7 KA 5W	R632	401 037 5410	MT-GLAZE		1/10W
	402 075 5704	WIRE WOUN	D 4.7 KA 5W	R634	401 027 0309	CARBON	47K JA	1/6W
★ R418	401 009 1607	CARBON	2.7K JB 1/2W	R683	401 026 9907	CARBON	4.7K JA	1/6W
★ R421	401 148 7201	MT-FILM	1.8K FA 1/6W	R686	401 016 1508	CARBON	22 JA	1/4W
★ R422	401 052 6802	MT-FILM	10K FA 1/6W	R687	401 025 8208	CARBON	22K JA	
★ R423	401 053 2605	MT-FILM	3.3K FA 1/6W	R688	401 024 9701	CARBON	12K JA	1/6W

Schematic Location	Part No.	Des	cription	Schematic Location	Part No.	Des	cription
R691	401 024 7400	CARBON	10K JA 1/6W	R882	401 037 5212	MT-GLAZE	100 JA 1/10W
R692	401 027 5908	CARBON	68K JA 1/6W	R883	401 024 6700	CARBON	100 JA 1/6W
R693	401 038 7918	MT-GLAZE	560K JA 1/10W	R884	401 024 6700	CARBON	100 JA 1/6W
R694	401 024 7400	CARBON	10K JA 1/6W	R886	401 024 7400	CARBON	10K JA 1/6W
R695	401 038 0810	MT-GLAZE	22K JA 1/10W	R1001	401 027 6608	CARBON	75 JA 1/6W
R701	401 027 8107	CARBON	82 JA 1/6W	R1051	401 027 6608	CARBON	75 JA 1/6W
R702	401 025 1308	CARBON	150 JA 1/6W	R1052	401 027 6608	CARBON	75 JA 1/6W
R703	401 025 4200	CARBON	1.8K JA 1/6W	R1053	401 037 5618	MT-GLAZE	10K JA 1/10W
R704	401 027 8107	CARBON	82 JA 1/6W 150 JA 1/6W	R1054	401 038 2210 401 024 7004	MT-GLAZE	27K JA 1/10W 1K JA 1/6W
R705 R706	401 025 1308 401 025 4200	CARBON CARBON	150 JA 1/6W 1.8K JA 1/6W	R1059 R1071	401 024 7004	CARBON CARBON	390 JA 1/6W
R700 R707	401 023 4200	CARBON	82 JA 1/6W	R1081	401 028 0809	MT-GLAZE	22K JA 1/10W
R707	401 025 1308	CARBON	150 JA 1/6W	R1082	401 038 0810	MT-GLAZE	22K JA 1/10W
R709	401 025 4200	CARBON	1.8K JA 1/6W	R1091	401 037 6813	MT-GLAZE	12K JA 1/10W
★ R711	401 065 4604	OXIDE-MT	12K JA 2W	R1092	401 038 2210	MT-GLAZE	27K JA 1/10W
★ R712	401 065 4604	OXIDE-MT	12K JA 2W	R1901	401 024 7400	CARBON	10K JA 1/6W
★ R713	401 065 4604	OXIDE-MT	12K JA 2W	R1902	401 024 7004	CARBON	1K JA 1/6W
R715	401 009 1508	CARBON	2.7K JA 1/2W	R1903	401 037 9210	MT-GLAZE	1.8K JA 1/10W
R716	401 009 1508	CARBON	2.7K JA 1/2W	R1904	401 038 0711	MT-GLAZE	2.2K JA 1/10W
R717	401 009 1508	CARBON	2.7K JA 1/2W	R1905	401 038 5112	MT-GLAZE	3.9K JA 1/10W
R722	401 027 8602	CARBON	8.2K JA 1/6W	R1906	401 038 7710	MT-GLAZE	5.6K JA 1/10W
R723	401 025 4200	CARBON	1.8K JA 1/6W	R1907	401 037 6813	MT-GLAZE	12K JA 1/10W
R724	401 026 9600	CARBON	470 JA 1/6W	R1909	401 024 7004	CARBON	1K JA 1/6W
R803	401 024 6700	CARBON	100 JA 1/6W	R1910	401 024 7004	CARBON	1K JA 1/6W
R804	401 024 6700	CARBON	100 JA 1/6W	R3401	401 037 5410	MT-GLAZE	1K JA 1/10W
R806	401 038 6416	MT-GLAZE	4.7K JA 1/10W	R3402	401 038 9318	MT-GLAZE	68K JA 1/10W
R807 R808	401 037 5618 401 037 5618	MT-GLAZE MT-GLAZE	10K JA 1/10W 10K JA 1/10W	R3403 R3404	401 037 7919 401 037 7919	MT-GLAZE MT-GLAZE	1.5K JA 1/10W 1.5K JA 1/10W
R809	401 037 3616	MT-GLAZE	4.7K JA 1/10W	R3405	401 037 7919	MT-GLAZE	1.5K JA 1/10W
R810	401 025 8208	CARBON	22K JA 1/6W	R3406	401 256 8008	MT-FILM	16.5K FD 1/6W
R813	401 037 5618	MT-GLAZE	10K JA 1/10W	R3407	401 038 3613	MT-GLAZE	3.3K JA 1/10W
R814	401 037 5618	MT-GLAZE	10K JA 1/10W	R3408	401 037 9210	MT-GLAZE	1.8K JA 1/10W
R816	401 038 3514	MT-GLAZE	330 JA 1/10W	R3421	401 024 6700	CARBON	100 JA 1/6W
R821	401 037 7919	MT-GLAZE	1.5K JA 1/10W	R3422	401 024 6700	CARBON	100 JA 1/6W
R822	401 025 3807	CARBON	180 JA 1/6W	R3431	401 -38 7611	MT-GLAZE	560 JA 1/10W
R823	401 024 9701	CARBON	12K JA 1/6W	R3432	401 -38 7611	MT-GLAZE	560 JA 1/10W
R826	401 037 7919	MT-GLAZE	1.5K JA 1/10W	R3435	401 037 5717	MT-GLAZE	100K JA 1/10W
R827	401 027 2600	CARBON	5.6K JA 1/6W	R3437	401 037 5717	MT-GLAZE	100K JA 1/10W
R828	401 026 4605	CARBON	33K JA 1/6W	R3440	401 037 7919	MT-GLAZE	1.5K JA 1/10W
R831	401 037 5717	MT-GLAZE	100K JA 1/10W	R3445	401 038 3811	MT-GLAZE	330K JA 1/10W
R833	401 024 7400	CARBON CARBON	10K JA 1/6W	R3446	401 037 5212	MT-GLAZE	100 JA 1/10W
R835 R842	401 026 1000 401 027 2303	CARBON	2.7K JA 1/6W 560 JA 1/6W	R3447 R3448	401 038 3811 401 037 5212	MT-GLAZE MT-GLAZE	330K JA 1/10W 100 JA 1/10W
R843	401 027 2303	CARBON	560 JA 1/6W	K3440	401 037 3212	WIT-GLAZE	100 JA 1/10W
R844	401 027 2303	CARBON	560 JA 1/6W				
R846	401 037 5410	MT-GLAZE	1K JA 1/10W		SWITCHES		
R847	401 027 2600	CARBON	5.6K JA 1/6W	SW1901	645 027 7382	SWITCH, PU	SH (POWER)
R848	401 027 2600	CARBON	5.6K JA 1/6W	SW1902	645 027 7382	SWITCH, PU	
R849	401 027 2600	CARBON	5.6K JA 1/6W	SW1903	645 027 7382	SWITCH, PU	SH (VOL-)
R851	401 037 5410	MT-GLAZE	1K JA 1/10W	SW1904	645 027 7382	SWITCH, PU	SH (CH+)
R852	401 038 5310	MT-GLAZE	39K JA 1/10W	SW1905	645 027 7382	SWITCH, PU	• •
R853	401 037 5816	MT-GLAZE	1M JA 1/10W	SW1906	645 027 7382	SWITCH, PU	SH (MENU)
R854	401 038 6317	MT-GLAZE	470 JA 1/10W				
R856	401 024 6700	CARBON	100 JA 1/6W				
R857	401 024 6700	CARBON	100 JA 1/6W				
R859	401 037 5618	MT-GLAZE	10K JA 1/10W				
R862	401 024 6700	CARBON	100 JA 1/6W				
R864	401 038 5310	MT-GLAZE	39K JA 1/10W				
R881	401 037 5212	MT-GLAZE	100 JA 1/10W				

Schematic Location	Part No.	Description	Schematic Location	Part No.	Description
	TRANSFOR	RMERS		423 007 1809	FUSE 125V 4A
T131	645 027 6095	TRANS, IF 4.5MHZ	F601A	645 000 5077	HOLDER, FUSE
T151	645 027 6088	TRANS, OSC 45.75MHZ		645 016 0479	HOLDER, FUSE
T401	610 000 1138	DRIVE TRANS	F601B	645 000 5077	HOLDER, FUSE
	610 223 1663	DRIVE TRANS		645 016 0479	HOLDER, FUSE
★ T402	645 032 8978	TRANS, FLYBACK	★ K701A	645 025 6103	SOCKET, CRT 8P
	645 018 9579	TRANS, FLYBACK	K1001	645 032 1979	JACK, RCA-3
★ T601	645 032 5175	TRANS, POWER, PULSE	K1003	645 032 2006	JACK, RCA-2
			K1051	610 010 8295	SOCKET, DIN 4P
			★ PS601	408 038 5606	THERMISTOR
	FILTERS/CF	RYSTALS	★ Q900	414 009 5407	CRT M78JUA068X78
X141	421 006 3206	SAW F TSF5221P		414 009 5704	CRT M78LKU30X12(W)
X153	610 015 2946	CERAMIC FILTER 4.5MHZ	★ RL601	645 000 4155	RELAY (POWER ON/OFF)
X153	645 030 1049	CERAMIC FILTER 4.5MHZ		645 011 2713	RELAY
X161	610 015 3059	TRAP, CERAMIC 4.5MHZ		645 024 7828	RELAY
X251	610 204 4195	CRYSTAL OSCILLATOR		645 015 8629	RELAY
	610 245 9746	CRYSTAL OSCILLATOR		645 024 7767	RELAY
	610 012 0655	CRYSTAL OSCILLATOR	SP901	645 013 6306	SPEAKER, 8
X401	645 020 9147	OSC, CERAMIC 507.5KHZ	SP902	645 013 6306	SPEAKER, 8
X801	645 000 6692	OSC, CERAMIC 8.00MHZ	VR461	645 003 5531	VR, SEMI, 10K N (H-WIDTH)
	645 021 5483	OSC, CERAMIC 8.00MHZ		645 011 6988	VR, SEMI, 10K N
				645 019 6003	VR, SEMI, 10K N
			★ W601	645 034 8518	CORD ,POWER-2.0MK-
	MISCELLAI	NEOUS	★ W900	610 264 8362	ASSY, WIRE GND CONNECTOR
A100	610 278 0888	ASSY, PWB, MAIN		610 267 0325	GND CONNECTOR
★ A101	645 032 5632	TUNER, U/V			
A102	610 246 9660	HOLDER ANT A-VC			
A102B	610 278 8815	ANT CABLE			
A700	610 275 9822	ASSY, PWB, SOCKET			
A1000	610 276 0101	ASSY, PWB, AV			
A1901	645 027 4213	UNIT, REMOCON RECEIVER			
★ F601	423 018 8101	FUSE 125V 4A			
	423 007 1601	FUSE 125V 4A			

CABINET PARTS LIST



CABINET PARTS LIST

ACCESSORY PARTS LIST

KEY NO.	PARTS NO.	DESCRIPTION	KEY NO.	PARTS NO.	DESCRIPTION
1	610 275 0027	CABINET FRONT ASSY		610 276 2228	OWNER'S MANUAL
2A	610 268 9679	CRT MTG WASHER 2.5MM (2 TOP)		645 034 8129	RC TRANSMITTER
2B	610 268 9655	CRT MTG WASHER 2.0MM (2 BTM)		610 278 3186	RC BATTERY COVER
3	412 053 3905	CRT MTG SCREW 6X35 (4 USED)			
OR	412 054 0002	CRT MTG SCREW 6X35 (4 USED)			
4	610 102 7151	DC HOLDER (4 USED)			
5	610 275 2472	CABINET BACK			
6	412 036 1805	SCREW 4X14 (12 USED)			
OR	411 078 1101	SCREW 4X14 (12 USED)			
7	610 276 6363	DEC AV SHEET			
8	610 275 4049	BUTTON UNIT			
9	610 265 3786	CAP RC			
10	610 276 6349	DEC SHEET			
11	610 236 9274	SANYO BADGE			

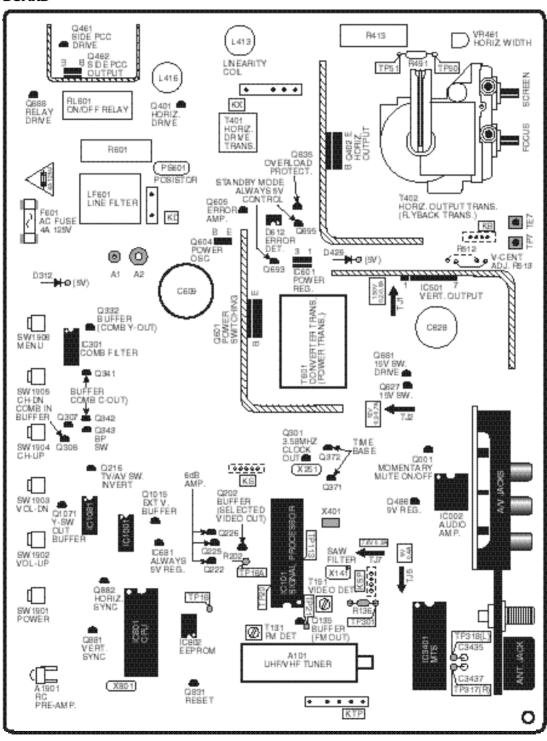
COMPONENT AND TESTPOINT LOCATIONS

CAUTION

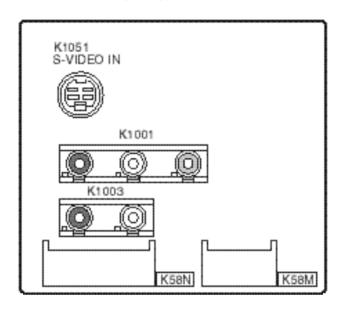


FOR CONTINUED PROTECTION AGAINST A RISK OF FIRE, REPLACE ONLY WITH THE SAME TYPE 4A, 125V FUSE.

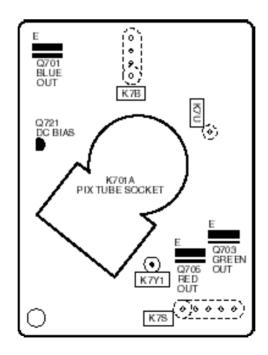
MAIN BOARD



A/V BOARD



PICTURE TUBE SOCKET BOARD



For parts or service contact
SANYO FISHER SERVICE
1411 West 190th Street, Suite 800
South Bay Corporate Center, Gardena, CA 90248

May / '99 /2000 SMC Printed in U.S.A.

SCHEMATIC DIAGRAMS

NOTES ON SCHEMATIC DIAGRAMS

- 1. All resistance values in ohms K=1,000 M=1,000,000.
- 2. Unless otherwise noted on schematic, all capacitor values less than 1 are expressed in μ F (Micro Farad), and the values more than 1 are in pF.
- 3. Unless otherwise noted on schematic, voltage reading taken with VOM from point indicated to chassis ground. Voltage reading taken using color-bar signal VHF channel 5, all controls at normal. Line voltage at 120 volts. Some voltages may vary with signal strength.
- 4. Waveforms were taken with color-bar signal and controls adjusted for normal picture. Waveforms marked with an * may vary with signal strength.
- 5. The Symbol indicates a fusible resistor, which protects the circuit from possible short circuits.

SERVICE NOTES:

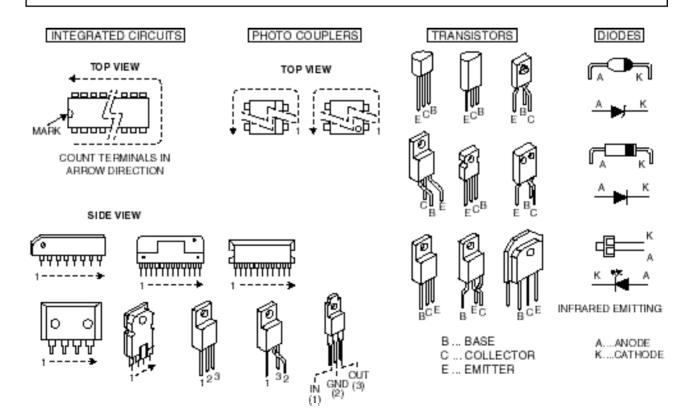
- 1. When replacing parts on circuit boards, clamp the lead wires to terminals before soldering.
- 2. When replacing high wattage resistors on circuit board, keep the resistor body 10 mm (3/8) from circuit board.
- 3. Keep wires away from high voltage and high temperature components.

PRODUCT SAFETY NOTICE

THE COMPONENTS DESIGNATED BY A STAR (\star) ON THIS SCHEMATIC DIAGRAM DESIGNATE COMPONENTS WHOSE VALUES ARE OF SPECIAL SIGNIFICANCE TO PRODUCT SAFETY. SHOULD ANY COMPONENT DESIGNATED BY A STAR NEED TO BE REPLACED, USE ONLY THE PART DESIGNATED IN THE PARTS LIST. DO NOT DEVIATE FROM THE RESISTANCE, WATTAGE AND VOLTAGE RATINGS SHOWN.

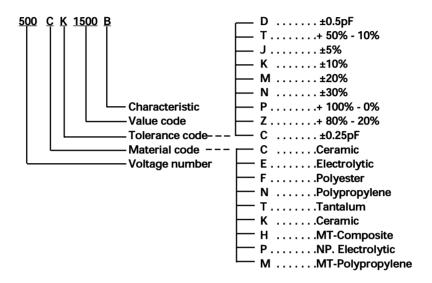
X-RADIATION WARNING NOTE

THIS TV CONTAINS CRITICAL PARTS TO PROTECT AGAINST X-RADIATION. NOMINAL 2ND ANODE VOLTAGE IS 30.0KV AT ZERO BEAM CURRENT AT 120 VOLTS AC LINE, AND MUST NOT EXCEED 31.0KV UNDER ANY OPERATING CONDITION. SEE HIGH VOLTAGE CHECK ON PAGE 7.

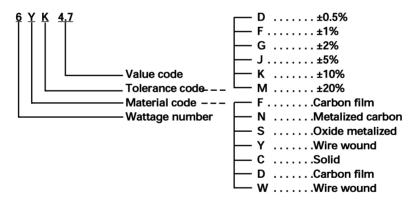


CAPACITOR AND RESISTOR CODE CHART

CAPACITOR (Example)



RESISTOR (Example)



MODEL DS31590 Chassis No. 31590-00

- **22**
- **23**
- <u> 24 —</u>
- **25**
- **26**
- **28**
- <u> 29 —</u>
- **30**
- **31**

VOLTAGE CHARTS

NOTE: Voltages were measured using color bar signal and the controls adjusted for normal picture.

Device/Pin #	Volts	/Mode
		ı
D612-1	POWER ON: 31.4	POWER OFF: N/A
D612-2	POWER ON: 30.4	POWER OFF: N/A
D612-3	POWER ON:	POWER OFF:
D612-4	POWER ON: 5.2	POWER OFF:
IC002-1	GND	
IC002-2	1.4	
IC002-3	1.4	
IC002-4	N.C.	
IC002-5	GND	
IC002-6	7.7	
IC002-7	15.9	
IC002-8	7.7	
IC101-1	1.6	
IC101-2	6.8	
IC101-3	6.8	
IC101-3	7.6	
IC101-4	3.9	
IC101-6	3.9	
IC101-8	3.4	
IC101-8	1.3	
IC101-9	GND	
IC101-10	3.8	
IC101-11	3.8	
IC101-12	5.0	
IC101-13	3.4	
IC101-14	5.8	
IC101-15	4.0	
IC101-16	3.5	
IC101-17	3.8	
IC101-18	6.2	
IC101-19	4.6	
IC101-20	GND	
IC101-21	7.5	
IC101-22	5.2	
IC101-23	0.6	
IC101-24	0.8	
IC101-25	0	
IC101-26	7.6	
IC101-27	GND	
IC101-28	2.8	
IC101-29	2.7	
IC101-30	2.8	
IC101-31	4.8	
IC101-32	7.6	
IC101-33	3.5	
IC101-34	3.5	
IC101-35	3.5	

Device/Pin #	Volts	/Mode
IC101-36	0.4	
IC101-37	5.1	
IC101-38	3.5	
IC101-39	3.6	
IC101-40	3.3	
IC101-41	3.2	
IC101-42	3.8	
IC101-43	3.7	
IC101-44	3.7	
IC101-45	3.2	
IC101-46	GND	
IC101-47	3.9	
IC101-48	3.9	
IC101-49	2.5	
IC101-50	3.8	
IC101-51	N.C.	
IC101-52	4.6	
IC301-1	GND	
IC301-2	2.2	
IC301-3	2.7	
IC301-4	2.2	
IC301-5	1.6	
IC301-6	0	
IC301-7	0	
IC301-8	4.9	
IC301-9	0	
IC301-10	2.4	
IC301-11	2.2	
IC301-12	3.4	
IC301-13	3.7	
IC301-14	1.8	
IC301-15	2.7	
IC301-16	4.9	
IC501-1	GND	
IC501-2	14.4	
IC501-3	27.7	
IC501-4	3.8	
IC501-5	3.8	
IC501-6	26.9	
IC501-7	2.8	
IC601-1	GND	
IC601-2	POWER ON: 33.4	POWER OFF: N/A
IC601-3	POWER ON: 129	POWER OFF: 74.7
IC681-1	POWER ON:	POWER OFF:
(IN)	11.6	7.3
IC681-2	GND	•
IC681-3	POWER ON:	POWER OFF:
(OUT)	5.0	5.0

Device/Pin #	Volts/Mode
IC801-1	4.4
IC801-2	4.7
IC801-3	4.9
IC801-4	0
IC801-5	0
IC801-6	0
IC801-7	0
IC801-8	TV: 0 ' AV: 4.4
IC801-9	0
IC801-10	5.0
IC801-11	0.2
IC801-12	0.2
IC801-13	0.3
IC801-14	5.0
IC801-15	2.1
IC801-16	0
IC801-17	2.0
IC801-17	GND
IC801-18	2.2
IC801-20	2.0
IC801-21	GND
IC801-22	5.0
IC801-23	N.C.
IC801-24	GND
IC801-25	5.0
IC801-26	3.5
IC801-27	POWER ON: POWER OFF:
	4.9 0
IC801-28	1.9
IC801-29	2.1
IC801-30	0
IC801-31	4.9
IC801-32	3.8
IC801-33	4.9
IC801-34	3.6
IC801-35	5.0
IC801-36	5.0
IC801-37	5.0
IC801-38	GND
IC801-39	0.3
IC801-40	0
IC801-41	0
IC801-42	0
IC802-1	GND
IC802-2	GND
IC802-3	GND
IC802-4	GND
IC802-5	4.9
IC802-6	4.9
IC802-7	GND
IC802-8	5.0
10001-0	

Device/Pin #	Volts/Mode
IC1081-1	6.2
IC1081-2	1.7
IC1081-3	2.7
IC1081-4	2.6
IC1081-5	2.6
IC1081-6	GND
IC1081-7	GND
IC1081-8	GND
IC1081-9	0
IC1081-10	0
IC1081-11	0
IC1081-12	4.4
IC1081-12	6.3
IC1081-13	4.4
IC1081-14	1.7
IC1081-15	9.1
IC3401-16	9.1
IC3401-2	4.7
IC3401-3	4.7
IC3401-4	4.7
IC3401-5	4.7
IC3401-6	4.7
IC3401-7	4.6
IC3401-8	6.0
IC3401-9	2.2
IC3401-10	3.7
IC3401-11	4.7
IC3401-12	4.8
IC3401-13	5.3
IC3401-14	4.7
IC3401-15	1.3
IC3401-16	5.3
IC3401-17	4.8
IC3401-18	4.8
IC3401-19	2.3
IC3401-20	4.7
IC3401-21	GND
IC3401-22	3.7
IC3401-23	3.7
IC3401-24	GND
IC3401-25	4.7
IC3401-26	4.7
IC3401-27	4.7
IC3401-28	4.7
IC3401-29	4.7
IC3401-30	4.7
IC3401-31	4.7
IC3401-32	4.7
IC3401-33	4.7
IC3401-34	N.C.
IC3401-35	N.C.

Device/Pin #	Volts/Mode
IC3401-36	4.7
IC3401-37	4.7
IC3401-38	4.7
IC3401-39	4.7
IC3401-40	4.7
IC3401-41	4.7
IC3401-42	4.9
Q001-B	POWER ON: POWER OFF: 0 0.7
Q001-C	POWER ON: POWER OFF: 8.0 , 0
Q001-E	GND
Q005-B	15.2
Q005-C	15.9
Q005-E	15.9
Q135-B	3.6
Q135-C	7.6
Q135-E	3.0
Q202-B	3.8
Q202-C	7.6
Q202-E	3.2
Q216-B	TV:0 ' AV: 0.6
Q216-C	TV:0.7 AV: 0
Q216-E	GND
Q222-B	1.9
Q222-C	6.1
Q222-E	1.3
Q225-B	6.1
Q225-C	2.1
Q225-E	6.8
Q226-B	2.1
Q226-C	GND
Q226-E	2.8
Q301-B	0.6
Q301-C	4.1
Q301-E	GND
Q306-B	3.2
Q306-C	9.1
Q306-E	2.6
Q307-B	1.1
Q307-C	GND
Q307-E	1.8
Q332-B	2.1
Q332-C	GND
Q332-E	2.7
Q341-B	3.7
Q341-C	4.8
Q341-E	2.9
Q342-B	2.4
Q342-C	4.8
Q342-E	1.8

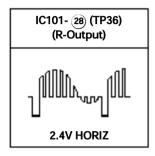
Device/Pin #	Volts	/Mode
Q343-B	TV: 0.7	' AV: 0
Q343-C	TV: 0	. AV: 0
Q343-E	GND	
Q371-B	6.1	
Q371-C	GND	
Q371-E	3.5	
Q372-B	3.0	
Q372-C	3.5	
Q372-E	3.5	
Q401-B	0.4	
Q401-C	43.5	
Q401-E	GND	
Q402-B	0	
Q402-C	N/A	
Q402-E	0	
Q461-B	0.6	
Q461-C	9.2	
Q461-E	GND	
Q462-B	9.2	
Q462-C	GND	
Q462-E	9.8	
Q486-B	9.9	
Q486-C	10.1	
Q486-E	9.1	
Q601-B	POWER ON: -0.3	POWER OFF:
Q601-C	POWER ON: 162	POWER OFF: 172
Q601-E	GND	
Q604-B	POWER ON: -1.6	POWER OFF: 0.6
Q604-C	POWER ON: -0.3	POWER OFF:
Q604-E	GND	•
Q605-B	POWER ON: 5.4	POWER OFF:
Q605-C	POWER ON: -0.3	POWER OFF:
Q605-E	POWER ON: 5.8	POWER OFF:
Q627-B	POWER ON: 10.8	POWER OFF: 7.3
Q627-C	POWER ON: 11.4	POWER OFF: 0.1
Q627-E	POWER ON: 11.6	, POWER OFF: 7.3
Q635-B	POWER ON: 4.0	POWER OFF:
Q635-C	POWER ON: 30.5	POWER OFF:

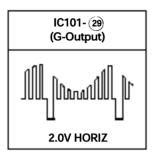
Device/Pin #	Volts	/Mode
Q635-E	POWER ON: 4.0	POWER OFF:
Q681-B	POWER ON: 0.7	POWER OFF:
Q681-C	POWER ON:	POWER OFF: 7.3
Q681-E	GND	
Q688-B	POWER ON: 11.4	POWER OFF: 0.1
Q688-C	POWER ON: 0	POWER OFF: 0
Q688-E	POWER ON: 11.4	POWER OFF: 0.1
Q693-B	POWER ON: 0.5	POWER OFF: 6.9
Q693-C	POWER ON: 30.4	POWER OFF:
Q693-E	POWER ON: 0.4	POWER OFF: 5.7
Q695-B	POWER ON: 30.4	'POWER OFF: N/A
Q695-C	GND	_
	POWER ON:	POWER OFF:
Q695-E	30.6	, N/A
Q701-B	2.5	
Q701-C	147	
Q701-E	2.6	
Q703-B	2.7	
Q703-C	146	
Q703-E	2.5	
Q705-B	2.7	
Q705-C	143	
Q705-E Q721-B	2.6 2.1	
Q721-C	GND	
Q721-E	1.3	
Q831-B	4.3	
Q831-C	4.9	
Q831-E	4.9	
Q881-B	0	
Q881-C	4.7	
Q881-E	GND	
Q882-B	0	
Q882-C	4.5	
Q882-E	GND	
Q1071-B	2.6	
Q1071-C	9.1	
Q1071-E	1.9	

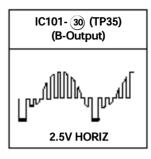
Device/Pin #	Volts/Mode
	1
	:

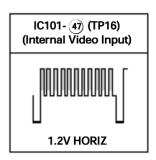
WAVEFORMS

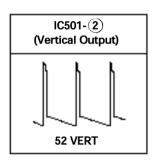
NOTE: Waveforms were taken with color bar signal and the controls adjusted for normal picture.

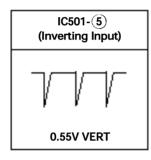


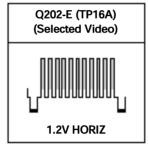


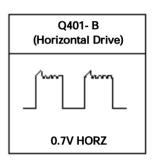


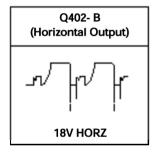


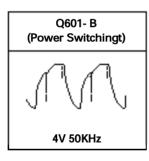


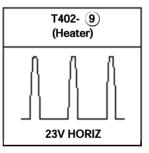












Notice



CORRECTION	PRODUCTION CHANGE	
SERVICE FLASH	ADD INFORMATION	FILE NO.

Please add this notice to the Service Manual listed below.

REVISION 13

 Category:
 COLOR TELEVISION
 Date:
 AUGUST / 15 / 2001

 Model:
 DS31590
 Effective from: Chassis No.
 31590-12

 Destination:
 U.S.A. / CANADA
 REF: No.
 SM780055-04

NOTE: Match the Chassis No. on the unit's back cover with the Chassis No. in the Service Manual. If the Service Manual Chassis No. does not match the unit's, additional Service Literature is required. This chassis is similar to Chassis No. 31590-03. Only the Difference Service Information is given in this manual. For detailed Service Information, refer to the Original Service Manual and Notices for Chassis No. 31590-03 used in Model DS31590 (SM780055-04).

1. IN THE CHASSIS ELECTRICAL PARTS LIST

The reason for change.

A: Misprint B: Quality Reliability C: Standardization

D: Design E: Add as a possible sub F: Schematic location change

G: Purchasing Request

Page & Section	Schematic Location		Part No.	Description	Q'ty	Interchange- ability	Reason
	*C417	Old	404 081 2302 403 346 6822	MT-POLYPRO 0.2U M 200V MT-POLYPRO 0.2U J 250V	1	NO	D
	^0417	New	404 081 2609 403 346 7126	MT-POLYPRO 0.27U M 200V MT-POLYPRO 0.27U J 250V	1	NO	D
	C461	Old	403 044 6609	ELECT 10U M 25V	1	NO	D
Page 12,	C461	New	403 049 9803	ELECT 2.2U M 50V	1	NO	U
Chassis Electrical	C462	Old	403 043 9106	ELECT 47U M 16V	1	NO	D
Parts List	C462	New	403 042 2405	ELECT 100U M 16V	1	NO	D
	C831	Old	403 076 5304	CERAMIC 680P K 500V	1	NO	D
	Cosi	New	403 076 6103	CERAMIC 820P K 500V	1	NO	U
Page 13, Chassis	D502	Old		NOT USED	1	NO	D
Electrical Parts List	Dauz	New	407 118 2207	ZENER DIODE 1Z75 (75V)	1	NO	ט
Page 18, Chassis	R461	Old	401 025 7409	CARBON 220 JA 1/6W	1	NO	D
Electrical Parts List	1401	New	401 026 3905	CARBON 330 JA 1/6W	1	NO	

Parts list continued on back

G7GDA, PRODUCT CODE 111341080

REFERENCE No. SM780055-13

1. IN THE CHASSIS ELECTRICAL PARTS LIST (Continued)

The reason for change.

A: Misprint B: Quality Reliability C: Standardization

D: Design E: Add as a possible sub F: Schematic location change

G: Purchasing Request

Page & Section	Schematic Location		Part No.	Description	Q'ty	Interchange- ability	Reason
	★R497	Old	401 064 5305	OXIDE MT 1.5 JA 2W	1	NO	D
Page 18, Chassis	^K497	New	401 067 2509	OXIDE MT 3.3 JA 2W	1	NO	
Electrical Parts List	R509	Old	401 027 5502	CARBON 6.8K JA 1/6W	1	NO	D
	K309	New	401 027 8602	CARBON 8.2K JA 1/6W	1	NO	ן
	A100	Old	610 284 7147	ASSY, PWB, MAIN BRD	1	NO	D
	A100	New	610 295 4159	ASSY, PWB, MAIN BRD	1	NO	
Page 20,	A700	Old	610 281 9472	ASSY, PWB, SOCKET	1	NO	D
Chassis Electrical	7,00	New	610 295 4166	ASSY, PWB, SOCKET	1	NO	
Parts List	*K701	Old	645 025 6103	SOCKET, CRT 8P	1	NO	D
	^K701	New	645 042 7664	SOCKET, CRT 9P	1	NO	, o
	*Q900	Old	414 010 6103	CRT M78JUA361X71	1	NO	D
		New	414 011 5907	CRT A79AKB50X01(V)	1	NO	

2. IN THE CABINET / ACCESSORY PARTS LIST

The reason for change.

A: Misprint B: Quality Reliability C: Standardization

D: Design E: Add as a possible sub F: Schematic location change

G: Purchasing Request

Page & Section	Key Number		Part No.	Description	Q'ty	Interchange- ability	
Page 21, Cabinet / Accessory Parts List	N/A	Old	610 282 3325	OWNER'S MANUAL	1	YES	D
		New	610 289 3083	OWNER'S MANUAL	1	YES	
	N/A	Old	645 040 2845	RCTRANSMITTER	1	YES	D
		New	645 044 3336	RCTRANSMITTER	1	YES	

For parts or service contact

SANYO Fisher Service Corporation

21605 Plummer Street Chatsworth, CA 91311 (U.S.A.)

300 Applewood Crescent, Concord, Ontario L4K 5C7 (CANADA)

Notice



CORRECTION	PRODUCTION CHANGE
SERVICE FLASH	ADD INFORMATION

FILE NO.

Please add this notice to the Service Manual listed below.

REVISION 12

Category: ___COLORTELEVISION Date: __JUNE / 15 / 2001

Model: _____ DS31590 Effective from: Chassis No. ___ 31590-11

Destination: __U.S.A. / CANADA ______ REF: No._ SM780055-04

NOTE: Match the Chassis No. on the unit's back cover with the Chassis No. in the Service Manual. If the Service Manual Chassis No. does not match the unit's, additional Service Literature is required. This chassis is similar to Chassis No. 31590-03. Only the Difference Service Information is given in this manual. For detailed Service Information, refer to the Original Service Manual and Notices for Chassis No. 31590-03 used in Model DS31590 (SM780055-04).

1. IN THE CHASSIS ELECTRICAL PARTS LIST

The reason for change.

A: Misprint B: Quality Reliability C: Standardization

D: Design E: Add as a possible sub F: Schematic location change

G: Purchasing Request

Page & Section	Schematic Location		Part No.	Description	Q'ty	Interchange- ability	Reason
	*C417	Old	404 081 2302 403 346 6822	MT-POLYPRO 0.2U M 200V MT-POLYPRO 0.2U J 250V	1	NO	D
Page 12, Chassis Electrical	^0417	New	404 081 2401 403 346 6921	MT-POLYPRO 0.22U M 200V MT-POLYPRO 0.22U J 250V	1	NO	
Parts List	C461	Old 403 044 6609 El	ELECT 10U M 25V	1	NO	D	
	C461	New	403 050 6600	ELECT 3.3U M 50V	1	NO	D
	R460	Old	401 024 9008	CARBON 120 JA 1/6W	1	NO	D
Page 18, Chassis Electrical Parts List	K460	New	401 025 1308	CARBON 150 JA 1/6W	1	NO	Ь
	R461	Old	401 025 7409	CARBON 220 JA 1/6W	1	NO	D
	K461	New	401 026 3905	CARBON 330 JA 1/6W	1	NO	b

Parts list continued on back

1. IN THE CHASSIS ELECTRICAL PARTS LIST (Continued)

The reason for change.

A: Misprint B: Quality Reliability C: Standardization

D: Design E: Add as a possible sub F: Schematic location change

G: Purchasing Request

Page & Section	Schematic Location		Part No.	Description	Q'ty	Interchange- ability	Reason
	★R497	Old	401 064 5305	OXIDE MT 1.5 JA 2W	1	NO	D
	^ K497	New	401 057 8009	OXIDE MT 1 JA 1W	1	NO	U
Page 18, Chassis	R506	Old	401 027 5205	CARBON 680 JA 1/6W	1	NO	D
Electrical Parts List	KSUG	New	401 026 9600	CARBON 470 JA 1/6W	1	NO	
	R509	Old	401 027 5502	CARBON 6.8K JA 1/6W	1	NO	D
	Rous	New	401 027 8602	CARBON 8.2K JA 1/6W	1/6W 1 NO	NO	
	A100	Old	610 284 7147	ASSY, PWB, MAIN BRD	1	NO	D
Page 20, Chassis	1 7100	New	610 288 3596	ASSY, PWB, MAIN BRD	1	NO	Б
Electrical Parts List	★ Q900	Old	414 010 6103	CRT M78JUA361X71	1	NO	D
		New	414 011 2500	CRT A78LKU30X07(W)	1	NO	D

2. IN THE CABINET / ACCESSORY PARTS LIST

The reason for change.

A: Misprint B: Quality Reliability C: Standardization

D: Design E: Add as a possible sub F: Schematic location change

G: Purchasing Request

Page & Section	Key Number		Part No.	Description	Q'ty	Interchange- ability	
Page 21, Cabinet / Accessory Parts List	Old	645 040 2845	RCTRANSMITTER	1	YES	D	
	New	645 044 3336	RCTRANSMITTER	1	YES	, D	

For parts or service contact

SANYO Fisher Service Corporation

21605 Plummer Street Chatsworth, CA 91311 (U.S.A.)

300 Applewood Crescent,

Concord, Ontario L4K 5C7 (CANADA)

Notice



CORRECTION	PRODUCTION CHANGE	
SERVICE FLASH	ADD INFORMATION	FILE NO.

Please add this notice to the Service Manual listed below.

REVISION 11

 Category:
 COLOR TELEVISION
 Date:
 NOVEMBER / 15 / 2001

 Model:
 DS31590
 Effective from: Chassis No.
 31590-10

 Destination:
 U.S.A. / CANADA
 REF: No.
 SM780055-04

NOTE: Match the Chassis No. on the unit's back cover with the Chassis No. in the Service Manual. If the Service Manual Chassis No. does not match the unit's, additional Service Literature is required. This chassis is similar to Chassis No. 31590-03. Only the Difference Service Information is given in this manual. For detailed Service Information, refer to the Original Service Manual and Notices for Chassis No. 31590-03 used in Model DS31590 (SM780055-04).

1. IN THE CHASSIS ELECTRICAL PARTS LIST

The reason for change.

A: Misprint B: Quality Reliability C: Standardization

D: Design E: Add as a possible sub F: Schematic location change

G: Purchasing Request

Page & Section	Schematic Location		Part No.	Description	Q'ty	Interchange- ability	Reason
	*C417	Old	404 081 2302 403 346 6822	MT-POLYPRO 0.2U M 200V MT-POLYPRO 0.2U J 250V	1	NO	D
Page 12, Chassis Electrical	^0417	New	404 081 2807 403 346 7225	MT-POLYPRO 0.33U M 200V MT-POLYPRO 0.33U J 250V	1	NO	ן ט
Parts List	C461	Old	403 044 6609	ELECT 10U M 25V	1	NO	D
	C461	New	403 049 9803	ELECT 2.2U M 50V	1	NO	
	C462	Old	403 043 9106	ELECT 47U M 16V	1	NO	D
	C462	New	403 038 1603	ELECT 100U M 6.3V	1	NO	
	D460	Old	401 024 9008	CARBON 120 JA 1/6W	1	NO	Г.
Page 18, Chassis Electrical Parts List	R460	New	401 025 3807	CARBON 180 JA 1/6W	1	NO	D
	DAGI	Old	401 025 7409	CARBON 220 JA 1/6W	1	NO	D
	R461	New	401 026 0607	CARBON 270 JA 1/6W	1	NO	

Parts list continued on back

G7EPM, PRODUCT CODE 111341080

REFERENCE No. SM780055-11

1. IN THE CHASSIS ELECTRICAL PARTS LIST (Continued)

The reason for change.

A: Misprint B: Quality Reliability C: Standardization

D: Design E: Add as a possible sub F: Schematic location change

G: Purchasing Request

Page & Section	Schematic Location		Part No.	Description	Q'ty	Interchange- ability	Reason
	★R497	Old	401 064 5305	OXIDE MT 1.5 JA 2W	1	NO	D
Page 18, Chassis	^ K497	New	401 064 3806	OXIDE MT 1 JA 2W	1	NO	D
Electrical Parts List	R506	Old	401 027 5205	CARBON 680 JA 1/6W	1	NO	D
	1300	New	401 027 2303	CARBON 560 JA 1/6W	1	NO	
	A100	Old	610 284 7147	ASSY, PWB, MAIN BRD	1	NO	D
Page 20, Chassis	A100	New	610 286 9026	ASSY, PWB, MAIN BRD	1	NO	D
Electrical Parts List	*Q900	Old	414 010 6103	CRT M78JUA361X71	1	NO	D
	Aqsoo	New	414 008 0502	CRT A79AEJ15X01	1	NO	

2. IN THE CABINET PARTS LIST

The reason for change.

A: Misprint B: Quality Reliability C: Standardization

D: Design E: Add as a possible sub F: Schematic location change

G: Purchasing Request

Page & Section	Key NO.		Part No.	Description	Q'ty	Interchange- ability	Reason
	N/A	Old	610 282 3325	OWNER'S MANUAL	1	NO	D
Page 21, Chassis	IN/A	New	610 289 3083	OWNER'S MANUAL	1	NO	ם
Electrical Parts List		Old	645 040 2845	RCTRANSMITTER	1	NO	D
		New	645 044 3336	RCTRANSMITTER	1	NO	

For parts or service contact

SANYO Fisher Service Corporation

21605 Plummer Street Chatsworth, CA 91311 (U.S.A.)

300 Applewood Crescent,

Concord, Ontario L4K 5C7 (CANADA)



SERVICE FLASH	ADD INFORMATION	FILE NO.
CORRECTION	PRODUCTION CHANGE	
		MIN .

Please add this notice to the Service Manual listed below.

REVISION 10

Category:	COLOR TELEVISION	Date:JULY / 15 / 2001
Model:	DS31590	Effective from: Chassis No. 31590-09
Destination:	U.S.A.	REF: No SM780055-04 _

NOTE: Match the Chassis No. on the unit's back cover with the Chassis No. in the Service Manual. If the Service Manual Chassis No. does not match the unit's, additional Service Literature is required. This chassis is similar to Chassis No. 31590-03. Only the Difference Service Information is given in this manual. For detailed Service Information, refer to the Original Service Manual and Notices for Chassis No. 31590-03 used in Model DS31590 (SM780055-04).

1. IN THE CHASSIS ELECTRICAL PARTS LIST

The reason for change.

A: Misprint B: Quality Reliability C: Standardization

D: Design E: Add as a possible sub F: Schematic location change

G: Purchasing Request

Page & Section	Schematic Location		Part No.	Description	Q'ty	Interchange- ability	Reason
	*C411	Old	403 343 8502 404 077 5003	MT-POLYPRO 8600P H 1.5K MT-POLYPRO 8600P H 1.5K	1	NO	D
	^0411	NEW	403 343 8205 404 077 4600	MT-POLYPRO 7800P H 1.5K MT-POLYPRO 7800P H 1.5K	1	NO	D
	*C414	New	403 083 4307	POLYPRO 0.022U J 400V	1	NO	D
Page 12,	^0414	New	403 083 3904	POLYPRO 0.018U J 400V	1	NO	D
Chassis Electrical Parts List	C461	Old	403 044 6609	ELECT 10U M 25V	1	NO	D
Parts List	C461	New	403 049 9803	ELECT 2.2U M 50V	1	NO	Б
	C462	Old	403 043 9106	ELECT 47U M 16V	1	NO	D
	C402	New	403 038 1603	ELECT 100U M 6.3V	1	NO	b
	R460	Old	401 024 9008	CARBON 120 JA 1/6W	1	NO	D
Page 18, Chassis	K400	New	401 026 3905	CARBON 330 JA 1/6W	1	NO	, b
Electrical Parts List	R461	Old	401 025 7409	CARBON 220 JA 1/6W	1	NO	D
	K401	New	401 026 0607	CARBON 270 JA 1/6W	1	NO	J

1. IN THE CHASSIS ELECTRICAL PARTS LIST (Continued)

The reason for change.

A: Misprint B: Quality Reliability C: Standardization

D: Design E: Add as a possible sub F: Schematic location change

G: Purchasing Request

Page & Section	Schematic Location		Part No.	Description	Q'ty	Interchange- ability	Reason
	*R497	Old	401 064 5305	OXIDE MT 1.5 JA 2W	1	NO	D
	^ K497	New	401 066 3002	OXIDE MT 2.2 JA 2W	1	NO	Ь
	R504	Old	401 027 5502	CARBON 6.8K JA 1/6W	1	NO	D
	1304	New	401 024 7400	CARBON 10K JA 1/6W	1	NO	D
	R506	Old	401 027 5205	CARBON 680 JA 1/6W	1	NO	D
Page 18, Chassis Electrical	K300	New	401 026 6609	CARBON 390 JA 1/6W	1	NO	ט
Parts List	R508	Old	401 024 9701	CARBON 12K JA 1/6W	1	NO	D
		New	401 025 1902	CARBON 15K JA 1/6W	1	NO	
	R509	Old	401 027 5502	CARBON 6.8K JA 1/6W	1	NO	D
	1,309	New	401 024 7400	CARBON 10K JA 1/6W	1	NO	D
	R513	Old		NOT USED		NO	D
	RS13	New	401 007 1104	CARBON 1K JA 1/2W	1	NO	
	A100	Old	610 284 7147	ASSY, PWB, MAIN BRD	1	NO	D
Page 20, Chassis		New	610 284 4832	ASSY, PWB, MAIN BRD	1	NO	
Electrical Parts List	*Q900	Old	414 010 6103	CRT M78JUA361X71	1	NO	D
	Ας300	New	414 010 1900	CRT A79ECK262X54	1	NO	

For parts or service contact
SANYO Fisher Service Corporation
21605 Plummer Street
Chatsworth, CA 91311 (U.S.A.)
300 Applewood Crescent,
Concord, Ontario L4K 5C7 (CANADA)

July / 2001 / 2200 SMC Printed in U.S.A.



CORRECTION	PRODUCTION CHANGE	
SERVICE FLASH	ADD INFORMATION	FILE NO.

Please add this notice to the Service Manual listed below.

REVISION 9

NOTE: Match the Chassis No. on the unit's back cover with the Chassis No. in the Service Manual. If the Service Manual Chassis No. does not match the unit's, additional Service Literature is required. This chassis is similar to Chassis No. 31590-03. Only the Difference Service Information is given in this manual. For detailed Service Information, refer to the Original Service Manual and Notices for Chassis No. 31590-03 used in Model DS31590 (SM780055-04).

1. IN THE CHASSIS ELECTRICAL PARTS LIST

The reason for change.

A: Misprint B: Quality Reliability C: Standardization

D: Design E: Add as a possible sub F: Schematic location change

G: Purchasing Request

Page & Section	Schematic Location		Part No.	Description	Q'ty	Interchange- ability	Reason
	A100	Old	610 284 7147	ASSY, PWB, MAIN BRD	1	YES	D
Page 20, Chassis	A100	New	610 286 3031	ASSY, PWB, MAIN BRD	1	YES	U
Parts List	Electrical Parts List *O900	Old	414 009 6103	CRT M78JUA361X71	1	YES	D
	4300	New	414 010 6905	CRT M78JUA361X72	1	YES	נ

Parts list continued on back

2. IN THE CABINET / ACCESSORY PARTS LIST

The reason for change.

A: Misprint B: Quality Reliability C: Standardization

D: Design E: Add as a possible sub F: Schematic location change

G: Purchasing Request

Page & Section	Key Number		Part No.	Description	Q'ty	Interchange- ability	Reason
Page 21, Cabinet /		Old	645 040 2845	RC TRANSMITTER	1	YES	D
Accessory Parts List		New	645 044 3336	RC TRANSMITTER	1	YES	D

For parts or service contact SANYO Fisher Service Corporation 21605 Plummer Street Chatsworth, CA 91311 (U.S.A.) 300 Applewood Crescent, Concord, Ontario L4K 5C7 (CANADA)

June / 2001 / 2200 SMC Printed in U.S.A.



CORRECTION	PRODUCTION CHANGE
SERVICE FLASH	ADD INFORMATION

FILE NO.

Please add this notice to the Service Manual listed below.

REVISION 8

Category: ___COLORTELEVISION _____ Date: __AUGUST / 15 / 2000

Model: _____ DS31590 Effective from: Chassis No. ___ 31590-07

Destination: **U.S.A. / CANADA** REF: No. **SM780055-04**

NOTE: Match the Chassis No. on the unit's back cover with the Chassis No. in the Service Manual. If the Service Manual Chassis No. does not match the unit's, additional Service Literature is required. This chassis is similar to Chassis No. 31590-03. Only the Difference Service Information is given in this manual. For detailed Service Information, refer to the Original Service Manual and Notices for Chassis No. 31590-03 used in Model DS31590 (SM780055-04).

1. IN THE CHASSIS ELECTRICAL PARTS LIST

The reason for change.

A: Misprint B: Quality Reliability C: Standardization

D: Design E: Add as a possible sub F: Schematic location change

G: Purchasing Request

Page & Section	Schematic Location		Part No.	Description	Q'ty	Interchange- ability	Reason
	*C417	Old	404 081 2302 403 346 6822	MT-POLYPRO 0.2U M 200V MT-POLYPRO 0.2U J 250V	1	NO	D
Page 12, Chassis Electrical	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	New	404 081 2401 403 346 6921	MT-POLYPRO 0.22U M 200V MT-POLYPRO 0.22U J 250V	1	NO	D
Parts List	C461	Old	403 044 6609	ELECT 10U M 25V	1	NO	D
	C461	New	403 050 6600	ELECT 3.3U M 50V	1	NO	Б
	R460	Old	401 024 9008	CARBON 120 JA 1/6W	1	NO	D
Page 18, Chassis	Page 18,	New	401 025 1308	CARBON 150 JA 1/6W	1	NO	, b
Electrical Parts List	lectrical	Old	401 025 7409	CARBON 220 JA 1/6W	1	NO	D
		New	401 026 3905	CARBON 330 JA 1/6W	1	NO	, b

Parts list continued on back

1. IN THE CHASSIS ELECTRICAL PARTS LIST (Continued)

The reason for change.

A: Misprint B: Quality Reliability C: Standardization

D: Design E: Add as a possible sub F: Schematic location change

G: Purchasing Request

Page & Section	Schematic Location		Part No.	Description	Q'ty	Interchange- ability	Reason
	★R497	Old	401 064 5305	OXIDE MT 1.5 JA 2W	1	NO	D
	^ K497	New	401 057 8009	OXIDE MT 1 JA 1W	1	NO	D
Page 18, Chassis	R506	Old	401 027 5205	CARBON 680 JA 1/6W	1	NO	D
Electrical Parts List	K300	New	401 026 9600	CARBON 470 JA 1/6W	1	NO	b
	R509	Old	401 027 5502	CARBON 6.8K JA 1/6W	1	NO	D
	1,309	New	401 027 8602	CARBON 8.2K JA 1/6W	1	NO	
	A100	Old	610 284 7147	ASSY, PWB, MAIN BRD	1	NO	D
Page 20, Chassis	A100	New	610 288 3596	ASSY, PWB, MAIN BRD	1	NO	D
Electrical	★ Q900	Old	414 010 6103	CRT M78JUA361X71	1	NO	- D
	^Q300	New	414 010 9401	CRT A78LKU30X12(G)	1	NO	

For parts or service contact SANYO Fisher Service Corporation 21605 Plummer Street Chatsworth, CA 91311 (U.S.A.) 300 Applewood Crescent, Concord, Ontario L4K 5C7 (CANADA)



Dlagge add this notice to	the Service Manual listed below	REVISION 7
SERVICE FLASH	ADD INFORMATION	FILE NO.
CORRECTION	PRODUCTION CHANGE	

Please add this notice to the Service Manual listed below.

Category: _	Category: COLOR TELEVISION		Date: MAY / 15 / 2000		
Model:	DS31590	_	Effective from: Chassis No	31590-06	<u> </u>
Destination:	U.S.A.	REF: No	SM780055-04		

NOTE: Match the Chassis No. on the unit's back cover with the Chassis No. in the Service Manual. If the Service Manual Chassis No. does not match the unit's, additional Service Literature is required. This chassis is similar to Chassis No. 31590-03. Only the Difference Service Information is given in this manual. For detailed Service Information, refer to the Original Service Manual and Notices for Chassis No. 31590-03 used in Model DS31590 (SM780055-04).

1. IN THE CHASSIS ELECTRICAL PARTS LIST

The reason for change.

B: Quality Reliability C: Standardization A: Misprint

D: Design E: Add as a possible sub F: Schematic location change

G: Purchasing Request

Page & Section	Schematic Location		Part No.	No. Description Q'ty Interchange ability		Interchange- ability	Reason
	*C411	Old	404 069 6407 404 077 5003	MT-POLYPRO 8600P H 1.5K MT-POLYPRO 8600P H 1.5K	1	NO	D
	^0411	NEW	404 068 6101 404 077 4600	MT-POLYPRO 7800P H 1.5K MT-POLYPRO 7800P H 1.5K	1	NO	D .
	*C412	Old	404 068 6200 404 077 4709	MT-POLYPRO 8000P H 1.5K MT-POLYPRO 8000P H 1.5K	1	NO	D
Page 12, Chassis Electrical	12, sis NEW		404 068 6101 404 077 4600	MT-POLYPRO 7800P H 1.5K MT-POLYPRO 7800P H 1.5K	1	NO	D .
Parts List	*C413	Old	403 083 4911	POLYPRO 0.027U J 400V	1	NO	D
	New		403 083 4317	POLYPRO 0.022U J 400V	1	NO	b
	*C417	Old	403 082 9818	POLYPRO 0.33U J 200V	1	NO	D
	^6417	New	403 082 8019	POLYPRO 0.2U J 200V	1	NO	b
	C461	Old	403 051 0607	ELECT 4.7U M 50V	1	NO	
	C461		403 049 9803	ELECT 2.2U M 50V	1	NO	
	C503	Old	403 205 4703	ELECT 4.7U K 25V	1	NO	D
	C303	New	403 204 1802	ELECT 3.3U K 50V	1	NO	D

1. IN THE CHASSIS ELECTRICAL PARTS LIST (Continued)

The reason for change.

A: Misprint B: Quality Reliability C: Standardization

D: Design E: Add as a possible sub F: Schematic location change

G: Purchasing Request

Page & Section	Schematic Location		Part No.	Description	Q'ty	Interchange- ability	Reason
Page 13, Chassis		Old	407 099 7109 407 054 5904	ZENER DIODE MTZJ15C ZENER DIODE RD15EB3	1	NO	D
Electrical Parts List	D420	NEW	407 099 7208 407 054 7007	ZENER DIODE MTZJ16A ZENER DIODE RD16EB1	1	NO	, b
	Dane	Old	401 026 9303	CARBON 47 JA 1/6W	1	NO	-
	R460	New	401 026 3905	CARBON 330 JA 1/6W	1	NO	D
	÷D407	Old	401 057 9105	OXIDE MT 1.2 JA 1W	1	NO	
	★R497	New	401 066 3002	OXIDE MT 2.2 JA 2W	1	NO	D
	DEO2	Old	401 027 5502	CARBON 6.8K JA 1/6W	1	NO	-
	R503	New	401 027 2600	CARBON 5.6K JA 1/6W	1	NO	D
	DEGA	Old	401 027 8602	CARBON 8.2K JA 1/6W	1	NO	-
	R504	New	401 024 7400	CARBON 10K JA 1/6W	1	NO	D
Page 18, Chassis R505 Electrical	DEGE	Old	401 006 8104	CARBON 1.2 JA 1/2W	1	NO	
	R505	New	401 006 8401	CARBON 1.5 JA 1/2W	1	NO	D
Parts List	DEGG	Old	401 027 5205	CARBON 680 JA 1/6W	1	NO	
	R506	New	401 026 6609	CARBON 390 JA 1/6W	1	NO	D
	DEOZ	Old	401 006 7602	CARBON 1 JA 1/2W	1	NO	
	R507	New	401 006 8807	CARBON 1.8 JA 1/2W	1	NO	D
	R509	Old	401 026 9907	CARBON 4.7K JA 1/6W	1	NO	D
	K309	New	401 024 7400	CARBON 10K JA 1/6W	1	NO	0
	R513	Old		NOT USED		NO	2
	K513	New	401 007 1104	CARBON 1K JA 1/2W	1	NO	D
	A100	Old	610 278 0888	ASSY, PWB, MAIN BRD	1	NO	_
Page 20, Chassis Electrical Parts List	A100	New	610 278 4602	ASSY, PWB, MAIN BRD	1	NO	D
	+DCen1	Old	408 038 5606	THERMISTER	1	NO	_
	*PS601	New	408 006 7304	THERMISTER	1	NO	D
	+0000	Old	414 009 5407 414 009 5704	CRT M78JUA068X78 CRT M78LKU30X12(W)	1	NO	
	*Q900	New	414 010 1900	CRT A79ECK262X54	1	NO	D

For parts or service contact SANYO Fisher Service Corporation 21605 Plummer Street Chatsworth, CA 91311



CORRECTION
SERVICE FLASH

PRODUCTION CHANGE ADD INFORMATION

FILE NO. $(-) \Delta$

Please add this notice to the Service Manual listed below.

REVISION 5

COLOR TELEVISION Category:

JULY / 20 / 2000 Date:

Model:

DS31590

Effective from: Chassis No.

31590-04

Destination: U.S.A. / CANADA

REF: No. **SM780055-04**

NOTE: Match the Chassis No. on the unit's back cover with the Chassis No. in the Service Manual. If the Service Manual Chassis No. does not match the unit's, additional Service Literature is required. This chassis is similar to Chassis No. 31590-03. Only the Difference Service Information is given in this manual. For detailed Service Information, refer to the Original Service Manual and Notices for Chassis No. 31590-03 used in Model DS31590 (SM780055-04).

1. IN THE CHASSIS ELECTRICAL PARTS LIST

The reason for change.

A: Misprint

B: Quality Reliability

C: Standardization

D: Design

E: Add as a possible sub F: Schematic location change

G: Purchasing Request

Page & Section	Schematic Location		Part No.	Description	Q'ty	Interchange- ability	Reason
	A100	Old	610 284 7147	ASSY, PWB, MAIN BRD	1	YES	D
Page 20, Chassis	A 100	New	610 286 3031	ASSY, PWB, MAIN BRD	1	YES	U
Electrical Parts List	★ Q900	Old	414 009 6103	CRT M78JUA361X71	1	YES	D
	* Q900	New	414 010 6905	CRT M78JUA361X72	1	YES	

For parts or service contact

SANYO Fisher Service Corporation

21605 Plummer Street Chatsworth, CA 91311 (U.S.A.)

300 Applewood Crescent, Concord, Ontario L4K 5C7 (CANADA)

G7EFM, PRODUCT CODE 111341080

REFERENCE No. SM780055-05

July / 2000 / 2200 SMC

Printed in U.S.A.



☐ CORRECTION ● PRODUCTION CHANGE ☐ SERVICE FLASH ☐ ADD INFORMATION	FILE NO. (481
Please add this notice to the Service Manual listed below.	REVISION 4
Category : COLOR TELEVISION	Date: MAY / 15 / 2000
Model: DS31590 Effective from	n : Chassis No. 31590-03
Destination:	
NOTE: Match the Chassis No. on the unit's back cover with the C If the Service Manual Chassis No. does not match the un required. This chassis is similar to Chassis No. 31590-00, h given in this Notice for Chassis No. 31590-03.	nit's, additional Service Literature is

Contents
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Mechanical Disassemblies 10
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Waveforms

Schematic Diagrams 29 - 32

Specifications	
Power Rating	120V, 60Hz
_	89W (Avg), 2.5A (Max)
Antenna Input Impedance	∋
. ,	UHF/VHF/CATV
Receiving Channel	2 - 13 (VHF),
J	14 - 69 (UHF),
	01, 14-94, 95-125 (CATV)
Remote Ready	38 Key Remote Control
	1.0 W/CH
Intermediate Frequency	
The state of the s	45.75 M Hz
	41.25 M Hz
	42.17 M Hz
	M78JUA361X71
Semiconductors	
Integrated Circuits	10
	nin Tuner and RC Pre-Amp.
Cabinet Dimensions	
Width	762mm
_	539mm

SAFETY INSTRUCTIONS

SAFETY PRECAUTIONS

WARNING: The chassis of this receiver has a floating ground with the potential of one half the AC line voltage in respect to earth ground. Service should not be attempted by anyone not familiar with the precautions necessary when working on this type of equipment.

The following precautions must be observed:

- An isolation transformer must be connected in the power line between the receiver and the AC line before any service is performed on the receiver.
- 2. Comply with all caution and safety-related notes provided on the side of the cabinet, inside the cabinet, on the chassis, and the picture tube.
- 3. When replacing a chassis in the cabinet, always be certain that all the protective devices are installed properly, such as control knobs, adjustment covers, shields and barriers.

DO NOT OPERATE THIS TELEVISION RECEIVER WITHOUT THE PROTECTIVE SHIELD IN POSITION AND PROPERLY SECURED.

 Before replacing the back cover of the set, thoroughly inspect the inside of the cabinet to see that no stray parts or tools have been left inside.

Before returning any television to the customer, the service technician must perform the following safety checks to be sure that the unit is completely safe to operate without danger of electrical shock.

ANTENNA COLD CHECK

Remove AC plug from the 120 VAC outlet and place a jumper across the two blades. Connect one lead of an ohmmeter to the jumpered AC plug, and touch the other lead to each exposed antenna terminal (UHF and VHF antenna terminals). The resistance must measure between 1M ohm and 5.2M ohm. Any resistance value below or above this range indicates an abnormality which requires corrective action.

LEAKAGE CURRENT CHECK

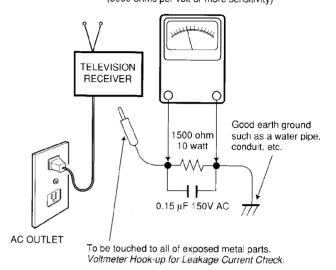
Plug the AC line cord directly into a 120 VAC outlet. (Do not use an isolation transformer for this check.) Use an AC voltmeter, that has 5000 ohms per volt or more sensitivity. Connect a 1500 ohm 10 watt resistor, paralleled by a 0.15 μF 150 VAC capacitor, between a known good earth ground (water pipe, conduit, etc.) and all exposed metal parts of the cabinet (antennas, handle bracket, metal cabinet, screw heads, metal overlays, control shafts, etc.). Measure the AC voltage across the 1500 ohm resistor. The AC voltage should not exceed 750 mV. A reading exceeding 750 mV indicates that a dangerous potential exists. The fault must be located and corrected. Repeat the above test with the receiver power plug reversed.

NEVER RETURN A RECEIVER TO THE CUSTOMER WITHOUT TAKING THE NECESSARY CORRECTIVE ACTION.

READING SHOULD NOT EXCEED 750 mV.

AC VOLTMETER

(5000 ohms per volt or more sensitivity)



X-RADIATION PRECAUTION

The primary source of X-RADIATION in solid-state receivers is the picture tube. The picture tube is specially constructed to limit X Ray emission. For continued X-RADIATION protection, the replacement tube must be the same type as the original (including the suffix letter in the part numbers). Excessive high voltage may produce potentially hazardous X-RADIATION. To avoid such hazards, the high voltage must be maintained within specific limits. Refer to the X-RADIATION WARNING NOTE on the CHASSIS SCHEMATIC in this service manual for specific high voltage limits. If the high voltage exceeds specified limits, check the components specified on the chassis schematic diagram and take the necessary corrective action. Carefully follow the instructions for the +B Voltage Check and the High Voltage Check to maintain the high voltage within the specified limits.

HIGH VOLTAGE HOLD-DOWN TEST

To prevent X-RADIATION from the picture tube due to excessive high voltage, a HOLD-DOWN circuit is provided in the high voltage circuit. Every time the receiver is serviced, the high voltage HOLD-DOWN circuit must be tested for proper operation. Refer to the HIGH VOLTAGE HOLD-DOWN TEST in service adjustments.

PRODUCT SAFETY NOTICE

When replacing components in a receiver, always keep in mind the necessary product safety precautions. Pay special attention to the replacement of components marked with a star (\star) in the parts list and in the schematic diagrams. To ensure safe product operation, it is necessary to replace those components with the exact same PARTS.

SERVICE ADJUSTMENTS

GENERAL

This set has an On-screen Service Menu system included in the CPU that allows remote operation for most of the service adjustments.

IC802 (EEPROM) REPLACEMENT

When IC802 (EEPROM) is replaced, IC801 (CPU) will automatically write the initial reference data into IC802 for basicTV operation. However, the bus data should be checked and some bus data should be set up before attempting the service adjustments. (See pages 4 – 5 for detailed information.)

INITIAL BUS DATA SETUP

Note: When IC802 (EEPROM) is replaced, the Service Menu NO. 01 HP (H-Phase), NO. 14 AF (Auto Flesh), NO. 21 GD (G Drive Reduction), NO. 24 AG (AFC Gain), NO. 26 SCO (Sub Color), NO. 27 STI (Sub-Tint), NO. 28 SSH (Sub Sharpness), NO. 30 OP2 (Option 2), NO. 31 HR (OSD Display H-Position) and NO. 38 SBO (Sub Bright Offset) should be set up for proper TV operation before attempting the service adjustments.

- 1. Disconnect the AC power cord (AC 120V line).
- 2. While pressing the MENU key, reconnect the AC power cord. The Service Menu display will now appear.
- 3. Select NO. 01 HP (H-Phase) with ▲ or ▼ key. Adjust the data with + or key for 20.
- 4. Select NO. 14 AF (Auto Flesh) with ▲ or ▼ key. Adjust the data with + or key for 1.
- 5. Select NO. 21 GD (G Drive Reduction) with ▲ or ▼ key. Adjust the data with + or key for 8.
- 6. Select NO. 24 AG (AFC Gain) with ▲ or ▼ key. Adjust the data with + or key for 0.
- 7. Select NO. 26 SCO (Sub Color) with ▲ or ▼ key. Adjust the data with + or key for 7.
- 9. Select NO. 27 STI (SubTint) with ▲ or ▼ key. Adjust the data with + or key for 19.
- 10. Select NO. 28 SSH (Sub Sharpness) with ▲ or ▼ key. Adjust the data with + or key for 6.
- 11. Select NO. 30 OPT2 (Option 2) with ▲ or ▼ key. Adjust the data with + or key for 65
- 12. Select NO. 31 HR (OSD Display H-Position) with ▲ or ▼ key. Adjust the data with + or key for 47.
- 13. Select NO. 38 SBO (Sub Bright Offset) with ▲ or ▼ key. Adjust the data with + or key for 3.
- 14. Press the MENU key to turn off the Service Menu display.

ON-SCREEN SERVICE MENU SYSTEM

1. Enter the Service Menu:

• While pressing the MENU key, reconnect the AC power cord. The Service Menu Display will now appear. (See Figure 1 below.)

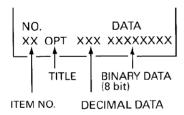


Figure 1. Service Menu Display

2. Service Adjustments:

- Press the ▲ or ▼ key to select the desired service menu you want to adjust. (See page 4 for On-screen Service Menu.)
- Use the + or key to adjust the data.

3. Exit from the Service Menu:

• Press the MENU key to turn off the Service Menu display.

Table 1. ON-SCREEN SERVICE MENU

When IC802 (EEPROM) is replaced, check the bus data to confirm they are the same as below. The shaded menu should be checked and be set up or readjusted according to the procedures described in the following pages. Initial Setup Data marked with an * should be changed from Initial Reference Data. (See page 3 for Initial Bus Data Setup.)

NO.	TITLE	INITIAL REFERENCE	INITIAL SETUP	RANGE OF DATA	e 3 for Initial Bus Data Setup.) FUNCTION
01	HP	DATA 15	DATA 20*	0~31	
02	IAS	0	0	0, 1	H-Phase (H-Centering) IF AGC Switch 0:TV (Normal) 1: AV (IF Gain Minumum)
03	RAD	25	25	0~63	IF AGC Switch 0:TV (Normal) 1: AV (IF Gain Minumum) RF AGC Delay
04	PT	64	64	0~127	PLLTuning
05	ADA	31	31	0~63	APC Detect Adjust
06	CD	0	0	0, 1	C-Diff
07	VS	32	32	0~63	Vertical Size
08	RB	0	0	0~255	Red Bias
09	GB	0	0	0~255	Green Bias
10	BB	0	0	0~255	Blue Bias
11	RD	60	60	0~127	Red Drive
12	BD	60	60	0~127	Blue Drive
13	TDS	0	0	0, 1	Trap & D (B.P.F.) Switch 0: OFF 1: ON
14	AF	0	1*	0, 1	Auto Flesh 0: OFF 1: ON
15	BS	0	0	0, 1	Black Stretch 0: OFF 1: ON
16	VL	4	4	0~7	Video Level
17	FL	15	15	0~31	FM Lovel
18	NIS	1	1	0, 1	N/I Switch (Black Noise Inverter) 0: OFF 1: ON
19	ABL	1	1	0,1	ABL Defeat 0: OFF 1: ON
20	WP	1	1	0,1	White Peak Limiter 0: OFF 1: ON
21	GD	7	8*	0~15	Green Drive Reduction
22	VC	0	0	0~7	Vert. Comp
23	VD	32	32	0~63	Vert. DC
24	AG	3	0*	0~3	AFC Gain 00: Auto 01: High Gain 10: Low Gain 11: Non-Gate
25	SB	32	32	0~63	Sub-Brightness
26	sco	10	7*	0~31	Sub-Color
27	STI	14	19*	0~31	Sub-Tint
28	SSH	8	6*	0~15	Sub-Sharpness
29	OPT	0	0	0~255	Option 1 (See Note 1 page 5.)
30	OP2	0	65*	0~255	Option 2 (See Note 2 page 5.)
31	HR	43	47*	0~63	H-Position (OSD H-Position)
32	ATT	15	15	0~15	Attenuation
33	STE	_	_		Not Used
34	FIL		_	<u>—</u>	Not Used
35	WDB	32	32	063	Wideband
36	SPC	32	32	0~63	Spectral
37	SPV			_	Not Used
38	SBO	5	3*	0~255	Sub Bright Offset
39	PCO	42	42	0~127	PIP Color
40	PTI	36	36	0~63	PIPTint
41	PUV	24	24	0~255	PIP Upper Vertical Position
42	PDV	147	147	0~255	PIP Lower Vertical Position
43	PLH	9	9	0~255	PIP Left Side Horizontal Position
44	PRH	99	99	0~255	PIP Right Side Horizontal Position
45	PCN	47	47	0~127	PIP Contrast
46	PBS	14	14	0~63	PIP Burst Gate Position
47	DRV	55	60*	0~127	Red Drive Adjustment (See Note 3 page 5.)
		55	60*	0~127	Blue Drive Adjustment (See Note 3 page 5.)
	-	0	0	0~255	Red Bias Adjustment (See Note 4 page 5.)
48	-	0	0	0~255	Green Bias Adjustment (See Note 4 page 5.)
		0	0	0~255	Blue Bias Adjustment (See Note 4 page 5.)

SERVICE ADJUSTMENTS (Continued)

PROGRAM CODES

The microprossesor used in this model is a multi-purpose type and is used in several different models. To ensure proper operation and the correct features for your particular model, the Program Codes must be correct.

Note 1. Option Data 1 (NO. 29 OPT) should be decimal 0 (00000000 binary). See page 3 ON-SCREEN SERVICE MENU SYSTEM for set up procedure. If this program code is wrong the TV will not operate properly.

		DA ⁻	ΤA	
BIT	FUNCTION	0	11	
0, 1	TV HOTEL MONITOR	00:TV 01: HOTEL 10: MONITOR (*1) 11: INHIBITED (=TV)		
2	VIDEO INPUT	NONE (*2)	YES	
3, 4	CLOCK	00: NONE 01: YES (AC 60 HZ) 10: YES (INT OSC) 11: INHIBITED (=NONE		
5	STEREO/MONO	MONO (*3)	STEREO	
6, 7	SURROUND	00: NONE 01:YES 10: Q-SOUN 11: INHIBITE		

Note 2. Option Data 2 (NO. 30 OPT 2) should be decimal 65 (01000001 binary). See page 3 INITIAL DATA SETUP, step 11, for set up procedure. If this program code is wrong the TV will not operate properly.

		DATA		
BIT	FUNCTION	0	11	
0	NOT USED			
1	COLOR ENHANCER	NONE	YES	
2	INITIAL CHANNEL	NONE	YES (*4)	
3	NOT USED	_	_	
4	PIP	NONE	YES	
5	AV1/AV1, AV2	AV1	AV1, AV2	
6	TONE/BASS, TREBLE	BASS,TR	TONE(*5)	
7	GAME	NONE	YES	

- *1. When the Monitor option is used, the CPU regards the Video Input option as Yes and the PIP option as None.
- *2. When the None Video Input option is used, the CPU regards the PIP option as None.
- *3. When the Mono option is used, the CPU regards the Surround and Tone options as None.
- *4. When the Initial Channel option is used the Initial Channel and XDS (Extended Data Service) features are available.
- *5. When the Mono option is used, the CPU regards the Tone option as None.

Note 3. Red/Blue Drive Adjustments in Service Menu NO. 47 DRV: Adjust Red and Blue Drive Levels alternately with 1, 3, 7, and 9 keys on the remote control. (See figure 2.) The Drive Level adjustment data will be written in the Service Menu No. 11 and 12 automatically.

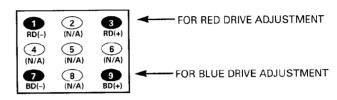


Figure 2.

Note 4. Red/Green/Blue Bias Adjustments in Service Menu NO. 48: Adjust each Bias Level with 1, 3, 4, 6, 7, or 9 key on the remote control. (See figure 3.) The Bias Level adjustment data will be written in the Service Menu No. 08 ~ 10 automatically.

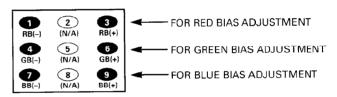


Figure 3.

SERVICE ADJUSTMENTS (Continued)

ANTENNA CONNECTIONS

This receiver is designed for UHF/VHF reception. A 75 ohm terminal is provided for UHF and VHF receptions. When connecting a CATV antenna system, connect the 75 ohm coaxial cable directly to the 75 ohm terminal. For 300 ohm VHF antenna, use an adapter (not included with the TV set).

CIRCUIT PROTECTION

Fuse F601 (4A) is included in the AC line. This fuse must be replaced with the proper fuse (see Parts List).

CAUTION



FOR CONTINUED PROTECTION AGAINST A RISK OF FIRE, REPLACE ONLY WITH THE SAME TYPE 4A, 125V FUSE.

ATTENTION: POUR MAINTENIR LA PRO-TECTION CONTRE LES RISQUES D'INCENDIE UTILISER UN FUSIBLE DE RECHANGE DE MEME TYPE 4A, 125V.

+B VOLTAGE CHECK

Connect Voltmeter + lead to TJ1 130V and – lead to ground (TE7). Connect receiver to AC 120V line. Tune receiver to an active channel. Reset the picture controls to the FACTORY PRESET levels (press remote control RESET key twice). Voltage must measure between +128.0V and 132.0V. If the voltage is out of this range, the power circuit must be checked. No +B adjustment is provided on this chassis.

HORIZONTAL WIDTH ADJUSTMENT

- 1. Tune receiver to an active channel.
- 2. Adjust H-Width Control (VR461) for proper width.
- 3. Select several other channels and check width.

HORIZONTAL CENTERING ADJUSTMENT

- 1. Tune receiver to an active channel.
- 2. Check that picture is in the horizontal center of TV screen. If picture is not centered horizontally, perform steps $3\sim6$.
- Turn off the receiver and disconnect the AC power cord (120V AC line).
- 4. While pressing the MENU key, reconnect the AC power cord. The Service Menu display will now appear.
- 5. Select NO. 01 HP (Horizontal Phase) with ▲ or ▼ key.
- Adjust the data with + or key for horizontal center. To turn off the Service Menu display, press the MENU key.

VERTICAL SIZE ADJUSTMENT

- 1. Tune receiver to an active channel.
- 2. Check the vertical size of the picture. If the vertical size is too large or small, perform steps $3 \sim 6$.
- 3. Turn off the receiver and disconnect the AC power cord (120V AC line).
- While pressing the MENU key, reconnect the AC power cord. The Service Menu display will now appear.
- 5. Select NO. 07 VS (Vertical Size) with ▲ or ▼ key.
- Adjust the data with + or -key for full scan. To turn off the Service Menu display, press the MENU key.

VERTICAL CENTERING ADJUSTMENT

- 1. Tune receiver to an active channel.
- Check that picture is in the center of TV screen. If picture center is too low, connect resistor R513 (470 ohm, 1W). If picture center is too high, connect resistor R512 (470 ohm, 1W).

GRAYSCALE ADJUSTMENT

- 1. Set the picture controls to the Sports levels or Reset (use MENU key and ▲ or ▼ key or RESET key).
- Turn off the receiver and disconnect the AC power cord (120V AC line).
- 3. While pressing the MENU key, reconnect the AC power cord. The Service Menu display will now appear.
- Selcct NO. 08 RB (Red Bias), NO. 09 GB (Green Bias), and NO. 10 BB (Blue Bias) with ▲ or ▼ key and set each data to 0 with + or - key.
- 5. Select NO. 11 RD (Red Drive) and NO. 12 BD (Blue Drive) with ▲ or ▼ key and set each data to 60 with + or key.
- 6. Set NO. 21 GD (G Drive Reduction) data to 8, NO. 25 SB (Sub-Brightness) data to 32, NO. 26 SCO (Sub-Color) data to 7, NO. 27 STI (Sub-Tint) to 19, and NO. 28 SSH (Sub-Sharpness) data to 6 with ▲ or ▼, and + or keys.
- Turn Screen Control (T402) to minimum (fully counterclockwise).
- 8. Select the Service Menu NO. 48 (Bias Adjustments) with ▲ or ▼ key.
- Advance Screen Control (T402) clockwise to obtain just visible one color line. If line does not appear, place this control to maximum (fully clockwise).
- 10. Raise each Bias Level with 3, 6, and 9 keys to obtain just visible white line. (See Figure 4 below.)

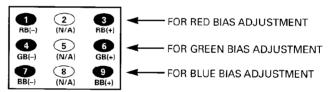


Figure 4. Remote Control Number keys' function in Service Menu NO. 48

- Select the Service Menu NO. 47 DRV (Drive Adjustments) with ▲ or ▼ key.
- 12. Adjust Red and Blue Drive Levels alternately with 1, 3, 7, or 9 key to produce normal black and white picture in highlight areas. (See figure 5 below.)

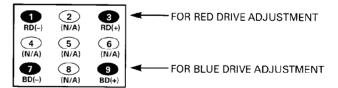


Figure 5. Remote Control Number keys' function in Service Menu NO. 47 DRV

13. Check for proper grayscale at all brightness levels. To turn off the Service Menu display, press the MENU key.

Note: If Grayscale Adjustment is made after picture tube replacement, check Brightness Level Adjustment.

FOCUS ADJUSTMENT

Adjust focus control (T402) for well defined scanning lines.

PLL TUNING ADJUSTMENT

Note: PLL Tuning must be adjusted after IC101 (Signal Processor), IC802 (EEPROM) or T151 (PLL VCO Coil) is replaced.

- 1. Disconnect the AC power cord (120V AC line).
- 2. While pressing the MENU key, reconnect the AC power cord. The Service Menu display will now appear.
- 3. Select NO. 04 PT (PLLTuning) with ▲ or ▼ key.
- 4. Adjust the data to 64 with + or key.
- 5. Disconnect the AC power cord (120V AC line).
- 6. Connect voltmeter + lead to TP113 on main board and lead to main board ground.
- 7. Press and Hold the POWER key on the front control panel while connecting the AC power cord. TV will turn on.
- 8. Disconnect the antenna terminal and select a good quality active color channel in your area, using keys 0 ~ 9 on the remote control. Wait a few seconds, and then reconnect the antenna terminal.
- 9. Turn PLL VCO coil (T151) on main board fully clockwise, and then gradually turn the coil counterclockwise until voltage is at the maximum level (approximately 6.7 VDC). Continue to turn the coil counterclockwise until the voltage is at the minimum level (approximately 0.7 VDC), and then turn the coil clockwise until voltage indicates 3.8 ± 1.0 VDC. Voltage change in the coil adjustments is shown in Figure 6.
- 10. Disconnect voltmeter from chassis.

Select every active channel with keys 0 ~ 9 and the scanning keys, and check to be sure the AFT is operating properly.

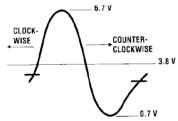


Figure 6. Voltage Change in Coil Adjustment

RF-AGC ADJUSTMENT

- 1. Tune receiver to strongest VHF station in your area.
- 2. Set contrast and brightness controls for maximum.
- Turn off the receiver and disconnect the AC power cord (120V AC line).
- 4. While pressing the MENU key, reconnect the AC power cord. The Service Menu display will now appear.
- 5. Select NO. 03 RAD (RF-AGC Delay) with ▲ or ▼ key.
- 6. Adjust the data with + or key in the direction which causes snow to appear; then in the opposite direction until the snow just disappears.
- 7. To turn off the Service Menu display, press the MENU key.

BRIGHTNESS LEVEL ADJUSTMENT

Note: Grayscale, RF-AGC, Video Level, and High Voltage Check must be adjusted before attempting Brightness Level Adjustment.

- 1. Connect a color-bar generator to the antenna terminals.
- 2. Switch the generator to the crosshatch pattern.
- 3. Reset the picture controls to the Sports levels.

- Connect voltmeter (high impedance) + lead to terminal TP51 and - lead to terminal TP50 on main board. Set voltmeter for 1.5V ~ 3V range.
- 5. Turn off the receiver and disconnect the AC power cord (120V AC line).
- 6. While pressing the MENU key, reconnect the AC power cord. The Service Menu display will now appear.
- 7. Select NO. 25 SB (Sub Brightness) with ▲ or ▼ key.
- 8. Adjust the data with + or key for 820mVDC.
- 9. Press the MENU key to turn off the Service Menu display.
- 10. Check brightness level on every active channel, readjust (repeat steps 5 ~ 9) if necessary).

Note: Do not set to excessive brightness level, otherwise the contrast level will be suppressed.

HIGH VOLTAGE HOLD-DOWN TEST

Every time the receiver is serviced, the HIGH VOLTAGE HOLD-DOWN circuit must be tested for proper operation by following these steps:

- 1. Connect receiver to 120V AC line. Tune receiver to active channel. Reset the picture controls to the Sports levels.
- Check that the voltage measured between TP7 and TE7 (ground side) is within 16.5 VDC to 21 VDC. If the voltage is out of this range, the Hold-Down Circuit must be checked.
- 3. Connect a DC Voltage supply to TP7 and TE7 through a 100 ohm 1/4W resistor. Adjust the DC voltage to 23 VDC. The receiver should shutdown, losing raster and sound. Then the receiver should turn off automatically. This reaction indicates that the Hold-Down circuit is functioning properly. If the receiver does not shutdown, a malfunction is indicated and its cause must be found and corrected.
- 4. To obtain picture again, remove the DC Supply and wait a few minutes. Now turn on the receiver.

HIGH VOLTAGE CHECK

Note: +B (+130V) Voltage Check and Grayscale Adjustment must be completed before attempting High Voltage Check.

- Connect high voltage voltmeter negative lead to ground, and connect + lead to anode of picture tube.
- 2. Tune receiver to an active channel and confirm TV is operating properly.
- 3. Eliminate the beam current by adjusting the contrast and brightness controls to minimum.
- 4. Confirm high voltage is within 29.0 KV and 31.0 KV. If reading is not within range, check horizontal circuit.

No high-voltage adjustment is provided on this chassis.

SOUND ADJUSTMENT

- Connect Voltmeter lead to ground and + lead IC101 Pin 50 (FM DET OUT).
- 2. Tune receiver to an active channel.
- 3. Confirm D.V.M. reading of $3.85 \pm 0.2 \text{ VDC}$.
- 4. If the voltage is out of this range, adjust Sound I.F. Transformer (T131) for $3.85 \pm 0.2 \, \text{VDC}$.

SERVICE ADJUSTMENTS (Continued)

VIDEO LEVEL

- Turn off the receiver and disconnect the AC power cord (AC 120V line).
- 2. Connect oscilloscope to TP16A and ground.
- 3. While pressing the Menu key, reconnect the AC power cord. The Service Menu will now appear.
- 4. Connect color bar generator to antenna terminals.
- 5. Select NO. 16 VL (Video Level) with the ▲ or ▼ key.
- Adjust the + or key for an oscilloscope reading of 2.0 ± 0.2% VP-P at TP16A. Press the MENU key to turn off the Service Menu display.

MULTI-SOUND SECTION ADJUSTMENTS

Note: Multi-Sound Section must be adjusted after IC101 (Signal Processor), IC3401 (MTS Decoder), IC802 (EEPROM), or T131 (Sound I.F. transformer) is replaced.

INPUT LEVEL ADJUSTMENT

- Turn off the receiver and disconnect the AC power cord (AC 120V line).
- 2. Connect voltmeter (RMS) to TP317 and ground.
- 3. While pressing the Menu key, reconnect the AC power cord. The Service Menu will now appear.
- 4. Select a channel with audio of 1 KHz 100% modulation.
- 5. Select NO. 32 ATT (Attenuation) with the \blacktriangle or \blacktriangledown key.
- 6. Adjust the + or key for a voltmeter reading of 400 \pm 5% mVrms at TP317.

SEPARATION ADJUSTMENT

- 7. Turn off the receiver and disconnect the AC power cord (AC 120V line).
- 8. Connect oscilloscope CH1 to TP317 and CH2 to TP318 and ground.
- 9. Connect an MTSTV/Stereo generator to antenna terminal.
- 10. While pressing the Menu key, reconnect the AC power cord. The Service Menu will now appear.
- 11. Select pilot, 300Hz audio frequency and Left modulating signal.
- 12. Select NO. 35 WDB (Wideband) with the ▲ or ▼ key.
- 13. Adjust the + or key for minimum low frequencies at TP317. (See Figure 8.)
- 14. Select 4 KHz audio frequency and Right modulating signal.
- 15. Select NO. 36 SPC (Spectral) with the ▲ or ▼ key.
- 16. Adjust the + or key for minimum high frequencies at TP318. (See Figure 7.)

Repeat adjustments (steps 11–16) until no further decreases in amplitude can be obtained. Press the MENU key to turn off the Service Menu display.

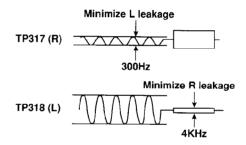


Figure 7. Separation Adjustments

PURITY AND CONVERGENCE ADJUSTMENTS

Purity and Convergence have been aligned at the factory. No re-alignment is necessary.

SERVICE HINTS

POWER FAILURE DETECTOR

This unit is equipped with a Power Failure Detector function included in the CPU which checks for an abnormal condition in the chassis power supplies, including the power supply derived from the Horizontal Output Transformer.

If, while the power is on, a failure is caused by any of the following which results in a low voltage supply, the CPU will turn the unit off in 1.5 seconds to prevent unnecessary damage:

- Failure within the power supply circuits.
- A short circuit in the load side from the supply.
- Stoppage of the Horizontal Output Oscillator caused by the X-Radiation protection Hold-Down Circuit.

If, while the power is off, the power is switched on and any of these failures remains uncorrected, the CPU will shut off the power within 3 seconds.

Check the following if the unit is turned off by the power failure detector.

- 1. Disconnect the AC power cord (120V AC line) for at least 10 seconds.
- 2. Connect a DC Voltmeter to the following TEST POINTS.

TJ5	9V
TJ7	7.6V
D312 Cathode	5V
D429 Cathode	5V

- 3. Press the power key and check for the proper voltage supplies.
- 4. If any of these voltages is low, the power failure detector should turn the unit off within 3 seconds.
- 5. Check all circuits listed above.

Note: This unit is equipped with a Power Surge Protection feature included in the CPU. If power failure occurs three times within 15 minutes, the CPU will automatically stop functioning to help prevent secondary damage. (TV will not turn on by pressing the power key.) To reset the operating programs within the CPU, disconnect the AC power cord for at least 10 seconds.

MECHANICAL DISASSEMBLIES

CABINET BACK REMOVAL

- 1. Refer to Figure 1, remove 12 screws.
- 2. Pull off cabinet back and remove.

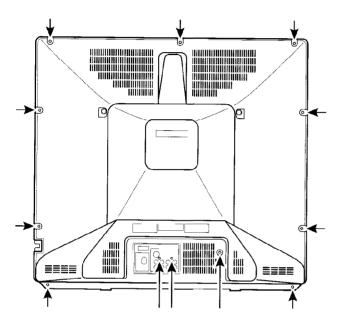


Figure 1. Cabinet Back Removal

CHASSIS REMOVAL

- 1. Remove cabinet back.
- 2. Discharge the picture tube anode (2nd anode lead) to the dag coating (picture tube grounding lead).
- Disconnect degaussing coil socket (KD), picture tube socket, deflection yoke connector (KX), speakers connector (KSP), picture tube ground lead, and 2nd anode lead.
- 4. Remove chassis completely by sliding it straight back.

PICTURE TUBE REMOVAL

CAUTION: Do not disturb the deflection yoke or magnet assembly on the picture tube neck. Care must be taken to keep these assemblies intact, unless picture tube is being replaced. Discharge the picture tube to the coating before handling the tube.

- 1. Remove chassis, referring to Chassis Removal instructions.
- 2. Place cabinet's front face down on a soft surface.
- 3. Remove the screw on each corner of the picture tube and GENTLY lift the picture tube out of the cabinet.
- 4. Install a replacement picture tube in reverse order. Properly install the degaussing coil and picture tube grounding lead on the picture tube. See Figure 2.

Note: If Picture Tube is being replaced, mount the Degaussing Coil properly on the tube. See Figure 2.

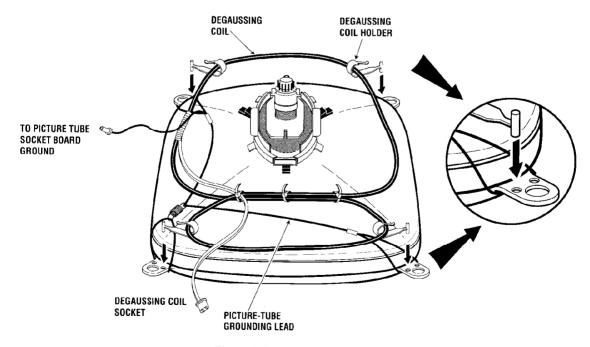


Figure 2. Picture Tube Removal

CHASSIS ELECTRICAL PARTS LIST

CAUTION: To Protect against electrical shock and for continued product safety, refer to SAFETY PRECAUTIONS, X-RADIATION PRECAUTIONS, HIGH VOLTAGE HOLD-DOWN TEST, and PRODUCT SAFETY NOTICE on Page 2.

PRODUCT SAFETY NOTICE

PRODUCT SAFETY SHOULD BE CONSIDERED WHEN A REPLACEMENT IS MADE IN ANY AREA OF A RECEIVER. COMPONENTS INDICATED BY A STAR (*) IN THIS PARTS LIST AND THE SCHEMATIC DIAGRAM DESIGNATE COMPONENTS IN WHICH SAFETY CAN BE OF SPECIAL SIGNIFICANCE. IT IS PARTICULARLY RECOMMENDED THAT ONLY PARTS DESIGNATED ON THE FOLLOWING PARTS LIST BE USED FOR COMPONENT REPLACEMENT DESIGNATED BY A STAR. NO DEVIATIONS FROM RESISTANCE, WATTAGE, AND VOLTAGE RATINGS MAY BE MADE FOR REPLACEMENT ITEMS DESIGNATED BY A STAR.

Notes: Parts having Location Number are located on the following boards.

Numbers under 700 SeriesOn the Main Board.

Numbers 700 Series On the Picture Tube Socket Board.

Numbers 800 Series ... On the Main Board
Numbers 900 Series ... Out of Board.
Numbers 1000 Series ... On the Main Board
Numbers 1900 series ... On the Main Board
Numbers 3400 series ... On the Main Board

Note: Schematic part location numbers may not always match with the part descriptions.

The part descriptions are correct and should be used.

Schematic Location	Part No.	Description		Schematic Location	Part No.	Desc	ription	
	CAPACITORS			C001	403 049 0008	ELECT	1U M	50V
NOTES:	CALACITOTIC			C002	403 049 0008	ELECT	1U M	50V
	on of the Capacitor	as follows:		C003	403 074 7607	CERAMIC	5600P K	50V
	on or the capacita			C004	403 074 7607	CERAMIC	5600P K	50V
(Example)				C010	403 043 0202	ELECT	220U M	16V
CERAMIC	100P K 50V	Rated Voltage		C011	403 043 0202	ELECT	220U M	16V
		rance Symbols:		C015	403 044 1703	ELECT	470U M	16V
Ì	less	than 10PF		C016	403 069 9500	CERAMIC	0.01U Z	50V
	Α	Not specified		C018	403 069 9500	CERAMIC	0.01U Z	50V
		.±0.1PF C±0.25PF		C101	403 039 3507	ELECT	470U M	6.3V
İ		.±0.5PF F±1PF .±2PF R+0.25 - 0PF		C103	403 069 9500	CERAMIC	0.01U Z	50V
	S	.+0 - 0.25PF E+0 - 1PF		C106	403 050 6600	ELECT	3.3U M	50V
		e than 10PF		C108	403 009 5708	CERAMIC	100P J	50V
		Not specified		C109	403 009 5708	CERAMIC	100P J	50V
	В.	.±0.1% C±0.25%		C131	403 049 0008	ELECT	1U M	50V
ľ	D.	.±0.5% F±1% .±2% H±3%		C133	403 069 9500	CERAMIC	0.01U Z	50V
	J.	.±5% K±10%		C141	403 069 9500	CERAMIC	0.01U Z	50V
L±15% M±20%				C142	403 062 7107	POLYESTER		50V
	N±30% P+100 - 0%				403 312 2609	POLYESTER		50V
1		.+30 - 10% T+50 - 10%		C143	403 069 9500	CERAMIC	0.01U Z	50V
	U.	.+75 - 10% V+20 - 10% .+100 - 10% X+40 - 20%		C147	403 043 9106	ELECT	47U M	16V
	\ \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	.+150 - 10% Z+80 - 20%		C151	403 048 6308	ELECT	0.47U M	50V
	Rated Value:	PPico Farad UMicro Farad		C161	403 069 9500	CERAMIC	0.01U Z	50V
	terial:			C166	403 020 0409	CERAMIC	27P J	50V
CEF	RAMIC Cer	amic		C202	403 069 9500	CERAMIC	0.01U Z	50V
	PAPERMe LYESTERPol			C208	403 041 8804	ELECT	10U M	16V
	POLYESTMe			C211	403 049 0008	ELECT	1U M	50V
PO	LYPRO Pol	ypropylene		C212	403 049 9803	ELECT	2.2U M	50V
MT	POLYPRO Me	talized Polypropylene		C221	403 041 8804	ELECT	10U M	16V
CO	MPO-FILMCoi	mposite Film		C252	403 060 8403	POLYESTER		50V
		talized Composite			403 312 1305	POLYESTER		50V
STYRENE Styrene TA-SOLID Tantalum Solid				C253	403 049 9803	ELECT	2.2U M	50V
AL-	SOLID Alı	ıminum Solid		C256	403 041 4509	ELECT	470U M	10V
ELECTElectrolytic				C257	403 069 9500	CERAMIC	0.01U Z	50V
NP	ELECT No	n-Polarized Electrolytic		C258	403 041 8804	ELECT	10U M	16V
OS	SOLIDAlu Se	uminum Solid with Örganic miconductive Electrolytic		C272	403 050 6600	ELECT	3.3U M	50V

Schematic					Cohamati		<u> </u>		
Location	Part No.	Des	cription		Schematic Location	Part No.	Des	cription	
C300	403 069 9500	CERAMIC	0.01U Z	50V	C497	403 039 6508	ELECT	100U M	10V
C303	403 070 2606	CERAMIC	0.1U Z		C502	403 053 2104	ELECT	220U M	35V
C304	403 043 9106	ELECT	47U M		C503	403 204 1802	ELECT	3.3U K	50V
C306	403 028 4102	CERAMIC	56P J	50V	C504	403 045 9807	ELECT	2200U M	25V
C307	403 018 0503	CERAMIC	22P J	50V	C505	403 166 8000	MT-POLYES	T 0.33U J	63V
C308	403 022 8205	CERAMIC	33P J	50V		403 067 7300	MT-COMPO	0.33U J	50V
C309	403 041 8804	ELECT	10U M	16V	C506	403 059 0104	POLYESTER	0.018U K	50V
C310	403 069 9500	CERAMIC	0.01U Z	50V		403 312 0100	POLYESTER	0.018U K	50V
0312	403 048 6308	FLECT	0.47U M	50V	C509	403 166 7706	MT-POLYES		63V
C313	403 069 9500	CERAMIC	0.01U Z			403 067 7805	MT-COMPO	0.47U J	50V
C314	403 069 9500	CERAMIC	0.01U Z	50V	C511	403 057 2100	POLYESTER		50V
C315	403 011 4904	CERAMIC	120P J	50V		403 311 8800	POLYESTER		50V
C316 C317	403 069 9500	CERAMIC	0.01U Z			403 057 3107	POLYESTER		50V
C317	403 014 9203 403 069 9500	CERAMIC CERAMIC	180P J	50V	0540	403 311 8909	POLYESTER	0.1U K	50V
C322	403 069 9500		0.01U Z	50V	C516	403 041 8804	ELECT	10U M	16V
C323	403 069 9500	CERAMIC CERAMIC	0.01U Z 0.01U Z	50V 50V	★ C601	404 071 2404	MT-POLYES		250V
C331	403 069 9500	CERAMIC	0.010 Z	50V	± 0600	404 066 2204	MT-POLYES		275V
C332	403 039 3507	ELECT	470U M	6.3V	★ C608	403 247 3702	CERAMIC	3300P K	1K
C336	403 024 2102	CERAMIC	39P J	50V		403 271 9701 403 276 0307	CERAMIC	3300P K	1K
C338	403 070 2606	CERAMIC	0.1U Z	50V	C609	404 075 5005	CERAMIC	3300P K	1K
C341	403 018 0503	CERAMIC	22P J	50V	C612	403 166 8208	ELECT MT-POLYES	470U M Γ 0.18U J	200V 63V
C342	403 033 4500	CERAMIC	82P J	50V	0012	403 067 6501	MT-POLTES	0.18U J	50V
C343	403 009 5708	CERAMIC	100P J	50V	C613	403 214 5203	POLYESTER		50V 50V
C344	403 069 9500	CERAMIC	0.01U Z	50V	0010	403 311 9203	POLYESTER		50V 50V
C351	403 050 6600	ELECT	3.3U M	50V	C620	403 057 2100	POLYESTER	0.0120 J	50V
C352	403 070 5508	CERAMIC	1200P K	50V	0020	403 311 8800	POLYESTER	0.1U J	50V
C371	403 048 6308	ELECT	0.47U M	50V		403 057 3107	POLYESTER	0.1U K	50V
C401	403 052 7308	ELECT	100U M	35V		403 311 8909	POLYESTER	0.1U K	50V
C403	403 059 6205	POLYESTER	0.022U K	50V	C622	403 044 1703	ELECT	470U M	16V
	403 312 0506	P0LYESTER	0.022U K	50V	★ C625	403 266 5008	CERAMIC	2700P K	1K
C405	403 051 0607	ELECT	4.7U M	50V		403 232 0402	CERAMIC	2700P K	1K
C406	403 076 3607	CERAMIC	470P K	500V	C626	403 043 1902	ELECT	2200U M	16V
C407	403 076 0507	CERAMIC	2200P K	500V	C628	404 073 9005	ELECT	220U M	160V
C408	403 103 0005	ELECT	4.7U M	160V	C629	403 043 0202	ELECT	220U M	16V
★ C411	404 077 5003	MT-POLYPRO			C630	403 049 0008	ELECT	1U M	50V
A C440	403 343 8502	MT-POLYPRO			★ C632	404 008 6802	CERAMIC	2200P M	125V
★ C412	404 077 4600	MT-POLYPRO				404 046 5003	CERAMIC	2200P M	125V
★ C413	403 343 8205 403 083 4307	MT-POLYPRO	0.022U J		0004	404 073 4604	CERAMIC	2200P M	250V
★ C414	403 083 4307	POLYPRO POLYPRO	0.022U J	400V	C634	403 043 9106	ELECT	47U M	16V
★ C416	404 081 2609	MT-POLYPRO		400∨ 200∨	C683 C688	403 038 6301	ELECT	220U M	6.3V
A 0110	403 346 7126	MT-POLYPRO		250V	C689	403 042 2405 403 070 2606	ELECT	100U M	16V
★ C417	404 081 2302	MT-POLYPRO		200V	C693	403 049 0008	CERAMIC ELECT	0.1U Z	50V
	403 346 6822	MT-POLYPRO		250V	C701	403 075 4803	CERAMIC	1U M 820P K	50V 50V
C419	403 158 9107	MT-POLYEST		100V	C711	403 074 9502	CERAMIC	680P K	50V 50V
C421	403 038 6301	ELECT	220U M	6.3V	C721	403 075 4803	CERAMIC	820P K	50V
C426	403 039 3507	ELECT	470U M	6.3V	C741	403 049 0008	ELECT	1U M	50V
C461	403 044 6609	ELECT	10U M	25V	★ C742	403 077 2807	CERAMIC	1000P Z	2K
C462	403 043 9106	ELECT	47U M	16V	C801	403 069 9500	CERAMIC	0.01U Z	50V
C466	403 047 3100	ELECT	47U M	25V	C806	403 039 3507	ELECT	470U M	6.3V
C470	403 166 7706	MT-POLYEST		63V	C811	403 049 0008	ELECT	1U M	50V
	403 067 7805	MT-COMPO	0.47U J	50V	C822	403 041 8804	ELECT	10U M	16V
C482	403 115 0703	ELECT	47U M	100V	C829	403 049 0008	ELECT	1U M	50V
C484	403 051 0607	ELECT	4.7U M	50V	C831	403 076 5304	CERAMIC	680P K	500V
C486	403 076 3607	CERAMIC	470P K	500V	C832	403 062 0504	POLYESTER		50V
C487	403 052 8503		1000U M	35V		403 312 2203	POLYESTER		50V
C489	403 044 1703	ELECT	470U M	16V	C835	403 069 9500	CERAMIC	0.01U Z	50V
C493	404 056 5307	NP-ELECT	2.2U M	100V	C841	403 069 9500	CERAMIC	0.01U Z	50V

Schematic Location	Part No.	Des	cription		Schematic Location	Part No.	Description
C842	403 069 9500	CERAMIC	0.01U Z	50V	D351	407 099 6607	ZENER DIODE MTZJ12B (12V)
C843	403 069 9500	CERAMIC	0.01U Z	50V		407 063 8408	ZENER DIODE MTZJ12C (12V)
C853	403 047 8402	ELECT	0.1U M	50V		407 054 3207	ZENER DIODE RD12EB2 (12V)
C854	403 011 4904	CERAMIC	120P J	50V		407 054 3306	ZENER DIODE RD12EB3 (12V)
C856	403 049 0008	ELECT	1U M	50V	D406	407 006 4108	DIODE ERB44-04
C857	403 018 7403	CERAMIC	220P J	50V	D407	407 095 8001	DIODE ERD07-15L
C858	403 069 1702	CERAMIC	1000P K	50V	★ D421	407 158 1307	ZENER DIODE HZ11B2L (11.2V)
C862	403 069 9500	CERAMIC	0.01U Z	50V	★ D422	407 158 1307	ZENER DIODE HZ11B2L (11.2V) ZENER DIODE MTZJ16A (16V)
C884	403 009 5708	CERAMIC	100P J	50V 50V	D428	407 099 7208 407 054 7007	ZENER DIODE RD16EB1 (16V)
C1000	403 069 9500	CERAMIC	0.01U Z 10U M	16V	D429	408 008 2406	DIODE 1N4148
C1001 C1002	403 041 8804 403 042 7707	ELECT ELECT	22U M	16V	0423	407 013 4306	DIODE 1S2076A
C1002 C1005	403 042 7707	CERAMIC	0.1U Z	50V		407 013 7109	DIODE 182473
C1003	403 070 2000	ELECT	10U M	16V	D463	408 008 2406	DIODE 1N4148
C1011	403 069 9500	CERAMIC	0.01U Z	50V	2 100	407 013 4306	DIODE 1S2076A
C1081	403 043 9106	ELECT	47U M	16V		407 013 7109	DIODE 1S2473
C1082	403 069 9500	CERAMIC	0.01U Z	50V	D481	407 124 6404	DIODE ERA18-04
C1902	403 041 8804	ELECT	10U M	16V		407 007 6606	DIODE ES1
C1910	403 069 9500	CERAMIC	0.01U Z	50V		407 124 5506	DIODE RMPG06G
C3401	403 047 8402	ELECT	0.1U M	50V	D482	407 011 4407	DIODE TVR1G
C3404	403 086 0108	NP-ELECT	4.7U M	25V	D483	407 124 6404	DIODE ERA18-04
C3406	403 070 6703	CERAMIC	0.012U K	50V		407 007 6606	DIODE ES1
C3407	403 074 7607	CERAMIC	5600P K	50V		407 124 5506	DIODE RMPG06G
C3408	403 048 6308	ELECT	0.47U M	50V	D486	407 099 6102	ZENER DIODE MTZJ10B (10V)
C3411	403 048 6308	ELECT	0.47U M	50V		407 054 0008	ZENER DIODE RD10EB2 (10V)
C3412	403 043 9106	ELECT	47U M	16V	D487	407 005 8602	DIODE ERA15-02
C3413	403 046 9905	ELECT	4.7U M	25V		407 088 6502	DIODE MPG06D
C3414	403 042 2405	ELECT	100U M	16V		407 011 3004	DIODE S5277B
C3416	403 086 0108	NP-ELECT	4.7U M	25V	D400	408 009 9404	DIODE 1N4002ID
C3417	403 046 9905	ELECT	4.7U M	25V 25V	D489	408 008 2406 407 013 4306	DIODE 1N4148 DIODE 1S2076A
C3418	403 086 0108	NP-ELECT CERAMIC	4.7U M 2700P K	20V 50V		407 013 4300	DIODE 152473
C3421 C3422	403 072 5605 403 130 3109	CERAMIC	0.047U K	50V 50V	D493	407 063 9306	ZENER DIODE MTZJ7.5C (7.5V)
C3423	403 342 9203	TA-SOLID	3.3U K	10V	D 730	407 057 6502	ZENER DIODE RD7.5EB3 (7.5V)
C3424	403 086 0108	NP-ELECT	4.7U M	25V	D501	407 005 8602	DIODE ERA15-02
C3426	403 299 1820	TA-SOLID	10U K	10V		407 088 6502	DIODE MPG06D
C3427	403 049 0008	ELECT	1U M	50V		407 011 3004	DIODE S5277B
C3431	403 073 9107	CERAMIC	4700P K	50V		408 009 9404	DIODE 1N4002ID
C3432	403 047 8402	ELECT	0.1U M	50V	D503	407 100 0204	ZENER DIODE MTZJ36A (36V)
C3433	403 073 9107	CERAMIC	4700P K	50V		407 056 2307	ZENER DIODE RD36EB1 (36V)
C3434	403 072 1607	CERAMIC	0.022U K	50V	★ D601	407 005 7605	DIODE EM2B
C3435	403 046 9905	ELECT	4.7U M	25V		408 008 8606	DIODE GP15G
C3436	403 086 0108	NP-ELECT	4.7U M	25V		407 013 3200	DIODE 1S1887A
C3437	403 046 9905	ELECT	4.7U M	25V	★ D602	407 005 7605	DIODE EM2B
C3439	403 086 0108	NP-ELECT	4.7U M	25V		408 008 8606	DIODE GP15G
C3446	403 046 9905	ELECT	4.7U M	25V		407 013 3200	DIODE 1S1887A
C3448	403 046 9905	ELECT	4.7U M	25V	★ D603	407 005 7605	DIODE EM2B
						408 008 8606	DIODE GP15G
	DIODES				+ DC04	407 013 3200	DIODE 1S1887A DIODE EM2B
D101	407 100 0204	ZENED DIO	DE MTZJ36A	(36)()	★ D604	407 005 7605	DIODE GP15G
D101	407 056 2307		DE RD36EB1			408 008 8606 407 013 3200	DIODE 1S1887A
D102	407 063 8903		DE MTZJ5.60		D609	407 124 6503	DIODE 131887A DIODE ERA18-02
D 102	407 057 0104		DE RD5.6EB		5000	407 007 6903	DIODE ES1Z
D311	407 099 5006		DE MTZJ4.7/			407 124 5605	DIODE RMPG06D
5011	407 056 7906		DE RD5.1EB			408 009 9008	DIODE BYD33D
D312	408 008 2406	DIODE 1N4		(- · - ·)	D610	408 008 2406	DIODE 1N4148
· -	407 013 4306	DIODE 1S2			20.0	407 013 4306	DIODE 1S2076A
	407 013 7109	DIODE 1S2				407 013 7109	DIODE 1S2473

Schematic Location	Part No.	Description	Schematic Location	Part No.	Description
D611	407 099 5808	ZENER DIODE MTZJ7.5A (7.5V)	D1901	407 063 9306	ZENER DIODE MTZJ7.5C (7.5V
	407 057 6304	ZENER DIODE RD7.5EB1 (7.5V)		407 057 6502	ZENER DIODE RD7.5EB3 (7.5V
★ D612	407 147 5705	PHOTO COUPLE 0N3131S			
	407 104 2402	PHOTO COUPLE PC817C			
★ D612 (Cont	.) 407 106 6101	PHOTO COUPLE PC817D		INTEGRATE	ED CIRCUITS
	407 175 9904	PHOTO COUPLE TLP621-1-BL	10002	409 275 7903	IC LA4525
D614	408 008 2406	DIODE 1N4148	★ IC101	409 431 2100	IC LA76170N
	407 013 4306	DIODE 1S2076A	IC301	409 406 1107	IC TC90A44P
	407 013 7109	DIODE 1S2473	★ IC501	409 340 1904	IC LA7841
★ D621	407 007 7603	DIODE EU2	★ IC601	409 172 8102	IC SE130NH
★ D624	407 211 6102	DIODE FE301-1L43	IC681	409 241 8309	IC TA78L05S
X D024	407 129 6706	DIODE RU4YX LF-L1	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	409 066 7303	IC UPC78L05J
★ D625	407 211 5808	DIODE FE201-6L43	IC801	410 354 9503	IC M37272M8- FP T
★ D023			IC802	409 470 3304	IC KS24C021C
DC07	407 129 7000	DIODE RU4AM LF-L1	IGOUZ	409 376 1503	IC ST24C02B6
D627	408 008 2406	DIODE 1N4148			
	407 013 4306	DIODE 1S2076A	104004	409 333 3700	IC 24LCO2B/P
	407 013 7109	DIODE 1S2473	IC1081	409 051 3006	IC TC4053BP
D629	407 099 7208	ZENER DIODE MTZJ16A (16V)	IC3401	409 467 1108	IC CXA2134Q-T6
	407 054 7007	ZENER DIODE RD16EB1 (16V)			
D680	408 008 2406	DIODE 1N4148		0011.0	
	407 013 4306	DIODE 1S2076A		COILS	
	407 013 7109	DIODE 1S2473	★ LF601	645 012 0589	LINE FILTER
D683	408 008 2406	DIODE 1N4148		645 026 8274	LINE FILTER
	407 013 4306	DIODE 1S2076A	L164	645 003 9713	INDUCTOR, 15U K
	407 013 7109	DIODE 1S2473		645 016 2657	INDUCTOR, 15U K
D687	408 008 2406	DIODE 1N4148	L166	645 003 9812	INDUCTOR, 33U K
	407 013 4306	DIODE 1S2076A		645 016 2985	INDUCTOR, 33U K
	407 013 7109	DIODE 1S2473	L305	645 008 2894	INDUCTOR, 5.6U K
D693	407 099 5402	ZENER DIODE MTZJ6.2B (6.2V)		645 016 3104	INDUCTOR, 5.6U K
5005	407 057 2702	ZENER DIODE RD6.2EB2 (6.2V)	L306	645 003 9782	INDUCTOR, 22U K
D694	408 008 2406	DIODE 1N4148		645 016 2831	INDUCTOR, 22U K
D034	407 013 4306	DIODE 1S2076A	L309	645 008 2894	INDUCTOR, 5.6U K
			2000	645 016 3104	INDUCTOR, 5.6U K
D004	407 013 7109	DIODE 182473	L310	610 078 5946	PIPE CORE
D801	408 008 2406	DIODE 1N4148	2010	652 000 1725	PIPE CORE
	407 013 4306	DIODE 1S2076A	L312	645 008 2894	INDUCTOR, 5.6U K
	407 013 7109	DIODE 1S2473	LOIZ		
D831	407 065 1308	ZENER DIODE MTZJ3.6B (3.6V)	1 220	645 016 3104	INDUCTOR, 5.6U K
	407 056 4707	ZENER DIODE RD4.3EB2 (4.3V)	L332	645 003 9713	INDUCTOR, 15U K
D834	407 099 8007	ZENER DIODE MTZJ20C (20V)	1044	645 016 2657	INDUCTOR, 15U K
	407 055 1905	ZENER DIODE RD20EB3 (20V)	L341	645 008 2924	INDUCTOR, 8.2U K
D836	408 008 2406	DIODE 1N4148		645 016 3227	INDUCTOR, 8.2U K
	407 013 4306	DIODE 1S2076A	L401	645 017 7675	INDUCTOR, 3.3U, FILTER
	407 013 7109	DIODE 1S2473	L402	610 031 9998	PIPE CORE
D843	408 008 2406	DIODE 1N4148	L403	610 078 6820	PIPE CORE
	407 013 4306	DIODE 1S2076A	★ L413	645 025 4406	COIL, LINEARITY
	407 013 7109	DIODE 1S2473		645 029 8035	COIL, LINEARITY
D1001	407 099 6102	ZENER DIODE MTZJ10B (10V)	L414	610 031 1367	INDUCTOR 202J
	407 054 0008	ZENER DIODE RD10EB2 (10V)		610 211 3488	INDUCTOR
D1002	407 099 6102	ZENER DIODE MTZJ10B (10V)	L416	645 013 8676	INDUCTOR, 350U
BIOOL	407 054 0008	ZENER DIODE RD10EB2 (10V)	L601	610 078 6820	PIPE CORE
D1006	407 099 6102	ZENER DIODE MTZJ10B (10V)	L621	610 078 5946	PIPE CORE
D1000	407 054 0008	ZENER DIODE RD10EB2 (10V)		652 000 1725	PIPE CORE
D1000			L623	610 078 5946	PIPE CORE
D1008	407 065 1308	ZENER DIODE MTZJ3.6B (3.6V)	2020	652 000 1725	PIPE CORE
D4000	407 056 4707	ZENER DIODE MTZ 12 GB (2 GV)	L625	610 078 5946	PIPE CORE
D1009	407 065 1308	ZENER DIODE MTZJ3.6B (3.6V)	LUZJ	652 000 1725	PIPE CORE
B. (407 056 4707	ZENER DIODE RD4.3EB2 (4.3V)	1.004	645 008 2894	
D1011	407 099 6102	ZENER DIODE MTZJ10B (10V)	L801	645 016 3104	INDUCTOR, 5.6U K
	407 054 0008	ZENER DIODE RD10EB2 (10V)		045 010 3104	INDUCTOR, 5.6U K

Schematic Location	Part No.	Description	Schematic Location	Part No.	Description
L813	645 006 2490	INDUCTOR, 1U K		405 012 2309	TR 2SC1815-Y
	645 016 2411	INDUCTOR, 1U K		405 157 0505	TR 2SC536NF-NPA
L814	645 006 2490	INDUCTOR, 1U K		405 151 8705	TR 2SC536NG-NPA
2011	645 016 2411	INDUCTOR, 1U K		405 020 7501	TR 2SC945A-PA
L821	645 008 2894	INDUCTOR, 5.6U K		405 020 7709	TR 2SC945A-QA
2021	645 016 3104	INDUCTOR, 5 .6U K		405 020 7907	TR 2SC945A-RA
L851	645 008 2894	INDUCTOR, 5.6U K	Q216	405 011 8401	TR 2SC1740S-Q
2001	645 016 3104	INDUCTOR, 5.6U K	4210	405 011 8500	TR 2SC1740S-R
L881	645 006 2490	INDUCTOR, 1U K		405 011 8609	TR 2SC1740S-S
2001	645 016 2411	INDUCTOR, 1U K		405 012 2002	TR 2SC1815-GR
L882	645 006 2490	INDUCTOR, 1U K		405 012 2101	TR 2SC1815-0
LOUZ	645 016 2411	INDUCTOR, 1U K		405 012 2309	TR 2SC1815-Y
★ L901	645 030 7430	COIL, DEGAUSSING		405 157 0505	TR 2SC536NF-NPA
¥ L301	645 041 1830	COIL, DEGAUSSING		405 151 8705	TR 2SC536NG-NPA
1.1001	645 008 2894	INDUCTOR, 5.6U K		405 020 7501	TR 2SC945A-PA
L1901	645 016 3104	INDUCTOR, 5.6U K		405 020 7709	TR 2SC945A-QA
	043 010 3104	INDUCTOR, 5.00 K		405 020 7709	TR 2SC945A-RA
			Q222	405 020 7907	TR 2SC1740S-Q
	TRANSISTO)BS	UZZZ	405 011 8500	TR 2SC1740S-R
Q001	405 011 8401	TR 2SC1740S-Q		405 011 8609	TR 2SC1740S-S
QUUT	405 011 8500	TR 2SC1740S-R			
	405 011 8609	TR 2SC1740S-S		405 012 2002 405 012 2101	TR 2SC1815-GR
	405 011 8009	TR 2SC1815-GR		405 012 2101	TR 2SC1815-0 TR 2SC1815-Y
	405 012 2101	TR 2SC1815-0			
	405 012 2101	TR 2SC1815-Y		405 157 0505	TR 2SC536NF-NPA TR 2SC536NG-NPA
	405 012 2309	TR 2SC536NF-NPA		405 151 8705 405 020 7501	TR 2SC945A-PA
	405 157 0303	TR 2SC536NG-NPA		405 020 7501	TR 2SC945A-QA
	405 020 7501	TR 2SC945A-PA		405 020 7709	TR 2SC945A-RA
	405 020 7709	TR 2SC945A-QA	Q225	406 000 6804	TR 2SA1015-GR(SAN)
	405 020 7703	TR 2SC945A-RA	UZZJ	405 000 0004	TR 2SA1015-Q(SAN)
Q005	405 008 4805	TR 2SB764-E		405 001 7407	TR 2SA1015-V(SAN)
Q000	405 008 4904	TR 2SB764-F		405 004 3109	TR 2SA564A-Q(CU)
Q101	405 011 8401	TR 2SC1740S-Q		405 004 3208	TR 2SA564A-R(CU)
QIOI	405 011 8500	TR 2SC1740S-R		405 151 3304	TR 2SA608NF-NPA
	405 011 8609	TR 2SC1740S-S		405 006 1707	TR 2SA933S-Q
	405 012 2002	TR 2SC1815-GR		405 006 1806	TR 2SA933S-R
	405 012 2101	TR 2SC1815-0	Q301	405 011 8401	TR 2SC1740S-Q
	405 012 2309	TR 2SC1815-Y	Q001	405 011 8500	TR 2SC1740S-R
	405 157 0505	TR 2SC536NF-NPA		405 011 8609	TR 2SC1740S-S
	405 151 8705	TR 2SC536NG-NPA		405 012 2002	TR 2SC1815-GR
	405 020 7501	TR 2SC945A-PA		405 012 2101	TR 2SC1815-0
	405 020 7709	TR 2SC945A-QA		405 012 2309	TR 2SC1815-Y
	405 020 7907	TR 2SC945A-RA		405 157 0505	TR 2SC536NF-NPA
Q135	405 011 8401	TR 2SC1740S-Q		405 151 8705	TR 2SC536NG-NPA
	405 011 8500	TR 2SC1740S-R		405 020 7501	TR 2SC945A-PA
	405 011 8609	TR 2SC1740S-S		405 020 7709	TR 2SC945A-QA
	405 012 2002	TR 2SC1815-GR		405 020 7907	TR 2SC945A-RA
	405 012 2101	TR 2SC1815-0	Q306	405 011 8401	TR 2SC1740S-Q
	405 012 2309	TR 2SC1815-Y	4000	405 011 8500	TR 2SC1740S-R
	405 157 0505	TR 2SC536NF-NPA		405 011 8609	TR 2SC1740S-S
	405 151 8705	TR 2SC536NG-NPA		405 012 2002	TR 2SC1815-GR
	405 020 7501	TR 2SC945A-PA		405 012 2101	TR 2SC1815-0
	405 020 7709	TR 2SC945A-QA		405 012 2309	TR 2SC1815-Y
	405 020 7907	TR 2SC945A-RA		405 157 0505	TR 2SC536NF-NPA
Q202	405 011 8401	TR 2SC1740S-Q		405 151 8705	TR 2SC536NG-NPA
G_0_	405 011 8500	TR 2SC1740S-R		405 020 7501	TR 2SC945A-PA
	405 011 8609	TR 2SC1740S-S		405 020 7709	TR 2SC945A-QA
	405 012 2002	TR 2SC1815-GR		405 020 7907	TR 2SC945A-RA
	405 012 2101	TR 2SC1815-0		.55 520 7 557	25 55 15

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Schematic Location	Part No.	Description	Schematic Location	Part No.	Description
Q307	406 000 6804	TR 2SA1015-GR(SAN)		405 001 7605	TR 2SA1015-Y(SAN)
	405 001 7407	TR 2SA1015-0(SAN)		405 004 3109	TR 2SA564A-Q(CU)
	405 001 7605	TR 2SA1015-Y(SAN)		405 004 3208	TR 2SA564A-R(CU)
	405 004 3109	TR 2SA564A-Q(CU)		405 151 3304	TR 2SA608NF-NPA
	405 004 3208	TR 2SA564A-R(CU)		405 006 1707	TR 2SA933S-Q
	405 151 3304	TR 2SA608NF-NPA		405 006 1806	TR 2SA933S-R
	405 006 1707	TR 2SA933S-Q	Q401	405 013 6207	TR 2SC2271-D-CTV
	405 006 1806	TR 2SA933S-R		405 013 6306	TR 2SC2271-E-CTV
Q332	406 000 6804	TR 2SA1015-GR(SAN)	★ Q402	405 082 2407	TR 2SD1879-CTV-YB
	405 001 7407	TR 2SA1015-0(SAN)	Q461	405 011 8401	TR 2SC1740S-Q
	405 001 7605	TR 2SA1015-Y(SAN)		405 011 8500	TR 2SC1740S-R
	405 004 3109	TR 2SA564A-Q(CU)		405 011 8609	TR 2SC1740S-S
	405 004 3208	TR 2SA564A-R(CU)		405 012 2002	TR 2SC1815-GR
	405 151 3304	TR 2SA608NF-NPA		405 012 2309	TR 2SC1815-Y
	405 006 1707	TR 2SA933S-Q		405 157 0505	TR 2SC536NF-NPA
0044	405 006 1806	TR 2SA933S-R		405 151 8705	TR 2SC536NG-NPA
Q341	405 011 8401	TR 2SC1740S-Q		405 020 7501	TR 2SC945A-PA
	405 011 8500	TR 2SC1740S-R	0.460	405 020 7709	TR 2SC945A-QA
	405 011 8609	TR 2SC1740S-S	Q462	405 064 7307 405 064 7406	TR 2SB1274-Q-RA
	405 012 2002 405 012 2101	TR 2SC1815-GR TR 2SC1815-0	Q486	405 004 7406	TR 2SB1274-R-RA TR 2SD400-E-MP
	405 012 2309	TR 2SC1815-V	Q400	405 023 5306	TR 2SD400-F-MP
	405 012 2509	TR 2SC536NF-NPA	★ Q601	405 025 3300	TR 2SC4423-CTV
	405 151 8705	TR 2SC536NG-NPA	Q604	405 058 0208	TR 2SC3807-R-CTV-YA
	405 020 7501	TR 2SC945A-PA	Q605	406 000 6804	TR 2SA1015-GR(SAN)
	405 020 7709	TR 2SC945A-QA	QOOO	405 001 7407	TR 2SA1015-0(SAN)
	405 020 7907	TR 2SC945A-RA		405 001 7605	TR 2SA1015-Y(SAN)
Q342	405 011 8401	TR 2SC1740S-Q		405 004 3109	TR 2SA564A-Q(CU)
	405 011 8500	TR 2SC1740S-R		405 004 3208	TR 2SA564A-R(CU)
	405 011 8609	TR 2SC1740S-S		405 151 3304	TR 2SA608NF-NPA
	405 012 2002	TR 2SC1815-GR		405 006 1707	TR 2SA933S-Q
	405 012 2101	TR 2SC1815-0		405 006 1806	TR 2SA933S-R
	405 012 2309	TR 2SC1815-Y	Q627	405 089 0000	TR 2SA1707-S
	405 157 0505	TR 2SC536NF-NPA		405 089 0109	TR 2SA1707-T
	405 151 8705	TR 2SC536NG-NPA		405 009 6907	TR 2SB985-S
	405 020 7501	TR 2SC945A-PA		405 009 7003	TR 2SB985-T
	405 020 7709	TR 2SC945A-QA	Q635	405 011 8401	TR 2SC1740S-Q
0040	405 020 7907	TR 2SC945A-RA		405 011 8500	TR 2SC1740S-R
Q343	405 011 8401	TR 2SC1740S-Q		405 011 8609	TR 2SC1740S-S
	405 011 8500	TR 2SC1740S-R		405 012 2002	TR 2SC1815-GR
	405 011 8609	TR 2SC1740S-S		405 012 2101	TR 2SC1815-0
	405 012 2002 405 012 2101	TR 2SC1815-GR TR 2SC1815-0		405 012 2309	TR 2SC1815-Y
	405 012 2309	TR 2SC1815-Y		405 157 0505 405 151 8705	TR 2SC536NF-NPA TR 2SC536NG-NPA
	405 157 0505	TR 2SC536NF-NPA		405 020 7501	TR 2SC945A-PA
	405 151 8705	TR 2SC536NG-NPA		405 020 7709	TR 2SC945A-QA
	405 020 7501	TR 2SC945A-PA		405 020 7907	TR 2SC945A-RA
	405 020 7709	TR 2SC945A-QA	Q681	405 011 8401	TR 2SC1740S-Q
	405 020 7907	TR 2SC945A-RA	400.	405 011 8500	TR 2SC1740S-R
Q371	406 000 6804	TR 2SA1015-GR(SAN)		405 011 8609	TR 2SC1740S-S
	405 001 7407	TR 2SA1015-O(SAN)		405 012 2002	TR 2SC1815-GR
	405 001 7605	TR 2SA1015-Y(SAN)		405 012 2101	TR 2SC1815-0
	405 004 3109	TR 2SA564A-Q(CU)		405 012 2309	TR 2SC1815-Y
	405 004 3208	TR 2SA564A-R(CU)		405 157 0505	TR 2SC536NF-NPA
	405 151 3304	TR 2SA608NF-NPA		405 151 8705	TR 2SC536NG-NPA
	405 006 1707	TR 2SA933S-Q		405 020 7501	TR 2SC945A-PA
	405 006 1806	TR 2SA933S-R		405 020 7709	TR 2SC945A-QA
Q372	406 000 6804	TR 2SA1015-GR(SAN)		405 020 7907	TR 2SC945A-RA
	405 001 7407	TR 2SA1015-O(SAN)			

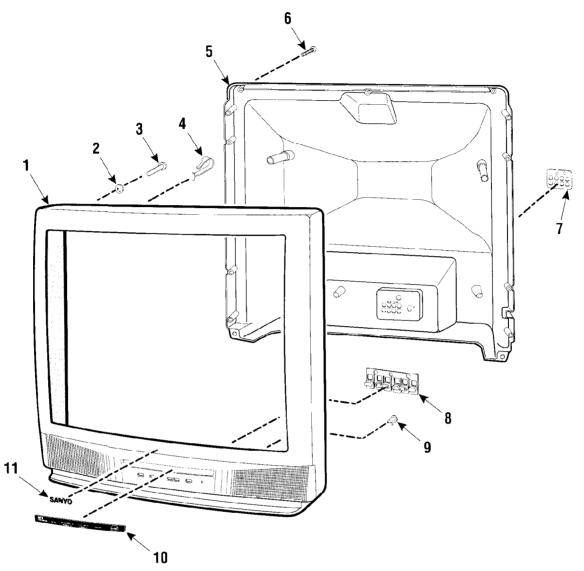
Schematic Location	Part No.	Description		Schematic Location	Part No.	Description	
Q688	406 000 6804	TR 2SA1015-GR(SAN)		Q882	405 011 8401	TR 2SC1740S-Q	
	405 001 7605	TR 2SA1015-Y(SAN)			405 011 8500	TR 2SC1740S-R	
	405 004 3208	TR 2SA564A-R(CU)			405 011 8609	TR 2SC1740S-S	
	405 151 3304	TR 2SA608NF-NPA			405 012 2002	TR 2SC1815-GR	
	405 006 1806	TR 2SA933S-R			405 012 2101	TR 2SC1815-0	
Q693	405 011 8401	TR 2SC1740S-Q			405 012 2309	TR 2SC1815-Y	
	405 011 8500	TR 2SC1740S-R			405 157 0505	TR 2SC536NF-NPA	
	405 011 8609	TR 2SC1740S-S			405 151 8705	TR 2SC536NG-NPA	
	405 012 2002	TR 2SC1815-GR			405 020 7501	TR 2SC945A-PA	
	405 012 2101	TR 2SC1815-0			405 020 7709	TR 2SC945A-QA	
	405 012 2309	TR 2SC1815-Y		01071	405 020 7907	TR 2SC945A-RA	
	405 157 0505	TR 2SC536NF-NPA		Q1071	405 011 8401	TR 2SC1740S-Q	
	405 151 8705	TR 2SC536NG-NPA			405 011 8500	TR 2SC1740S-R	
	405 020 7501	TR 2SC945A-PA			405 011 8609	TR 2SC1740S-S	
	405 020 7709	TR 2SC945A-QA			405 012 2002	TR 2SC1815-GR TR 2SC1815-0	
0005	405 020 7907	TR 2SC945A-RA			405 012 2101 405 012 2309	TR 2SC1815-Y	
Q695	405 001 7605	TR 2SA1015-Y(SAN)			405 012 2309	TR 2SC536NF-NPA	
	405 004 3208 405 004 4809	TR 2SA564A-R(CU) TR 2SA608-F-CTV-NP			405 151 8705	TR 2SC536NG-NPA	
Q701	406 000 3605	TR 2SC3620(LB-SAN-1)			405 020 7501	TR 2SC945A-PA	
Q/OI	405 066 4304	TR 2SC2621-C-RA			405 020 7709	TR 2SC945A-QA	
	405 041 6507	TR 2SC2621-D-RA			405 020 7907	TR 2SC945A-RA	
	405 041 6705	TR 2SC2621-E-RA			RESISTORS	2000	
	405 066 9903	TR 2SC2688(1)-K	۸	IOTES:	NESIS I ONS		
	405 067 0008	TR 2SC2688(1)-L			on of the Resistor a	s follows:	
	405 067 0107	TR 2SC2688(1)-M		icaa acaanpin			
Q711	406 000 3605	TR 2SC3620(LB-SAN-1)	(1	Example)			
	405 066 4304	TR 2SC2621-C-RA		CARBON	4.7K J A 1/	<u>4W</u>	
	405 041 6507	TR 2SC2621-D-RA				Rated Wattage	
	405 041 6705	TR 2SC2621-E-RA				Nated Wattage	
	405 066 9903	TR 2SC2688(1)-K				erformance Symbols:	
	405 067 0008	TR 2SC2688(1)-L				General BNon-flamma	able
	405 067 0107	TR 2SC2688(1)-M				Low noise therTemperature coeffic	ient
Q721	406 000 3605	TR 2SC3620(LB-SAN-1)				mom romporatare cocmo	
	405 066 4304	TR 2SC2621-C-RA			└─Toler	ance Symbols:	
	405 041 6507	TR 2SC2621-D-RA				05% B0.1% C0.25% 5% E1% G2%	
	405 041 6705	TR 2SC2621-E-RA			J5%		
	405 066 9903	TR 2SC2688(1)-K TR 2SC2688(1)-L			P+5	-15%	
	405 067 0008 405 067 0107	TR 2SC2688(1)-M					
Q831	406 000 6804	TR 2SA1015-GR(SAN)				lue, ohms:	
QO3 I	405 001 7407	TR 2SA1015-0(SAN)			K1,000	M1,000,000	
	405 001 7407	TR 2SA1015-Y(SAN)			— Material:		
	405 004 3109	TR 2SA564A-Q(CU)				Carbon	
	405 004 3208	TR 2SA564A-R(CU)				Metal Film	
	405 151 3304	TR 2SA608NF-NPA				Composition	
	405 006 1707	TR 2SA933S-Q				Metal Glaze	
	405 006 1806	TR 2SA933S-R				NDWire Wound	
Q881	405 011 8401	TR 2SC1740S-Q				ESCeramic SFusible	
	405 011 8500	TR 2SC1740S-R			FUSIBLE NE	Fusible	
	405 011 8609	TR 2SC1740S-S					
	405 012 2002	TR 2SC1815-GR		R001	401 027 8602	CARBON 8.2K JA 1/0	
	405 012 2101	TR 2SC1815-0		R002	401 027 8602	CARBON 8.2K JA 1/0	
	405 012 2309	TR 2SC1815-Y		R003	401 025 4200	CARBON 1.8K JA 1/0	
	405 157 0505	TR 2SC536NF-NPA		R004	401 025 4200	CARBON 1.8K JA 1/0	
	405 151 8705	TR 2SC536NG-NPA		R005	401 037 5608	MT-GLAZE 10K JA 1/10	
	405 020 7501	TR 2SC945Λ-PA		R006	401 023 1706	CARBON 820 JA 1/4	
	405 020 7709	TR 2SC945A-QA		R012	401 027 2600		6W
	405 020 7907	TR 2SC945A-RA		R101	401 026 6609	CARBON 390 JA 1/0	6W

**R104	Schematic Location	Part No.	Des	cription	Schematic Location	Part No.	Description
R105 40 100 11007 CARBON 68 JA 1/2W R351 40 1029 9000 CARBON 470 JA 1/5W R106 40 1009 2000 CARBON 277 JA 1/5W R353 40 1039 2000 CARBON 107 JA 1/5W R133 40 1037 6704 MT-GLAZE 1.2K JA 1/10W R353 40 1037 6704 MT-GLAZE 10K JA 1/10W R137 40 1037 6704 MT-GLAZE 10K JA 1/10W R137 40 1038 3001 MT-GLAZE 30 K JA 1/10W R138 40 1037 5002 MT-GLAZE 10W JA 1/10W R373 40 1038 3002 MT-GLAZE 30 K JA 1/10W R134 40 1037 5400 MT-GLAZE 10K JA 1/10W R373 40 1038 7007 MT-GLAZE 30 K JA 1/10W R134 40 1037 5400 MT-GLAZE 10K JA 1/10W R377 40 1038 7009 MT-GLAZE 30 K JA 1/10W R151 40 1025 1308 CARBON 150 JA 1/6W R377 40 1038 7009 MT-GLAZE 30 K JA 1/10W R151 40 1025 1308 CARBON 150 JA 1/6W R400 40 1038 3301 MT-GLAZE 30 K JA 1/10W R151 40 1025 1308 CARBON 150 JA 1/6W R400 40 1038 3301 MT-GLAZE 30 K JA 1/10W R151 40 1037 9708 MT-GLAZE 20 K JA 1/10W R403 40 1038 2030 MT-GLAZE 20 K JA 1/10W R403 40 1038 2030 MT-GLAZE 20 K JA 1/10W R403 40 1038 2030 MT-GLAZE 20 K JA 1/10W R403 40 1038 2030 MT-GLAZE 20 K JA 1/10W R403 40 1038 2030 MT-GLAZE 20 K JA 1/10W R403 40 1038 2030 MT-GLAZE 20 K JA 1/10W R403 40 1038 2000 MT-GLAZE 20 K JA 1/10W R403 40 1038 2000 MT-GLAZE 20 K JA 1/10W R403 40 1038 2000 MT-GLAZE 20 K JA 1/10W R403 40 1038 2000 MT-GLAZE 20 K JA 1/10W R403 40 1038 2000 MT-GLAZE 20 K JA 1/10W R403 40 1037 5000 MT-GLAZE 20 K JA 1/10W R403 40 1037 5000 MT-GLAZE 20 K JA 1/10W R403 40 1037 5000 MT-GLAZE 10 K JA 1/10W R403 40 1037 5000 MT-GLAZE 10 K JA 1/10W R403 40 1037 5000 MT-GLAZE 10 K JA 1/10W R404 40 1027 5000 K JA 1/10W R404 40 102	★ R104	401 009 4806	CARBON	33 JA 1/2W	B349	401 024 7004	CARBON 1K JA 1/6W
R106							
R133		401 009 2000					
R136		401 037 6704				401 024 7400	
R137	R136	401 027 8305	CARBON	820 JA 1/6W	R371	401 037 5608	
R142	R137	401 038 9001	MT-GLAZE	680 JA 1/10W	R372	401 038 3702	
R151 401 025 1308 CARBON 150 JA 1/6W R400 401 038 700 MT-GLAZE 5 6K JA 1/10W R159 401 025 7409 CARBON 150 JA 1/6W R401 401 037 3801 MT-GLAZE 308K JA 1/10W R161 401 037 9408 MT-GLAZE 180K JA 1/10W R403 401 038 2011 MT-GLAZE 27K JA 1/10W R162 401 038 0909 MT-GLAZE 220K JA 1/10W R404 401 038 2011 MT-GLAZE 27K JA 1/10W R163 401 038 0902 MT-GLAZE 220K JA 1/10W R406 401 010 8305 CARBON 330 JA 1/6W R163 401 038 0902 MT-GLAZE 220K JA 1/10W R406 401 010 8305 CARBON 56 K JA 1/6W R164 401 024 7004 CARBON 150 JA 1/6W ★ R407 401 068 4700 OXIDE-MT 4 7K JA 2 W R167 401 025 2305 CARBON 150 JA 1/6W ★ R407 401 068 4700 OXIDE-MT 4 7K JA 2 W R168 401 038 2309 MT-GLAZE 27K JA 1/10W ★ R407 401 037 5004 MT-GLAZE 0.000 ZA 1/10W R168 401 038 2305 MT-GLAZE 1K JA 1/10W ★ R413 402 067 3305 WIRE WOUND 4.7 KA 5 W R202 401 024 7004 CARBON 150 JA 1/6W ★ R413 402 067 3305 WIRE WOUND 4.7 KA 5 W R202 401 024 7004 CARBON 100 JA 1/6W ★ R413 402 067 3305 WIRE WOUND 4.7 KA 5 W R202 401 024 7004 CARBON 100 JA 1/6W ★ R421 401 487 201 MT-FILM 16K FA 1/6W R207 401 037 5400 MT-GLAZE 1K JA 1/10W ★ R422 401 052 6802 MT-FILM 16K FA 1/6W R214 401 037 5606 MT-GLAZE 10K JA 1/10W ★ R422 401 052 6802 MT-FILM 16K FA 1/6W R214 401 037 5606 MT-GLAZE 10K JA 1/10W ★ R422 401 053 6800 MT-FILM 3.3K FA 1/6W R221 401 037 5806 MT-GLAZE 10K JA 1/10W R466 401 038 9001 MT-FILM 16K FA 1/6W R222 401 037 5800 MT-GLAZE 10K JA 1/10W R466 401 025 1902 CARBON 12K JA 1/6W R222 401 037 5800 MT-GLAZE 10K JA 1/10W R467 401 027 5008 CARBON 12K JA 1/6W R222 401 037 5400 MT-GLAZE 10K JA 1/10W R467 401 027 5005 CARBON 12K JA 1/6W R222 401 037 5400 MT-GLAZE 10K JA 1/10W R468 401 025 1902 CARBON 12K JA 1/6W R222 401 037 5400 MT-GLAZE 10K JA 1/10W R467 401 025 7409 CARBON 12K JA 1/6W R223 401 038 5001 MT-GLAZE 22K JA 1/10W R468 401 025 7409 CARBON 12K JA 1/6W R223 401 038 5001 MT-GLAZE 22K JA 1/10W R468 401 027 5005 CARBON 680 JA 1/6W R224 401 038 3500 MT-GLAZE 10K JA 1/10W R474 401 027 5005 CARBON 15K JA 1/6W R223 401 037 5008 MT-GLAZE 10K JA 1/10W R489 401 027 5005 CARBON 15K JA 1/6W R233	R138	401 037 5202	MT-GLAZE	100 JA 1/10W	R373	401 038 9407	MT-GLAZE 680K JA 1/10W
R151 401 025 1308 CARBON 150 JA 1/6W R401 401 038 3801 MT-GLAZE 300K JA 1/10W R159 401 025 7409 CARBON 220 JA 1/6W R401 401 017 0807 CARBON 270 JA 1/4W R161 401 037 9408 MT-GLAZE 180K JA 1/10W R403 401 038 2010 MT-GLAZE 27K JA 1/10W R404 401 026 9905 CARBON 330 JA 1/6W R163 401 038 0909 MT-GLAZE 220K JA 1/10W R404 401 026 9905 CARBON 5.6K JA 1/2W R164 401 024 7004 CARBON 15K JA 1/6W ** R407 401 068 4700 CARBON 5.6K JA 1/2W R164 401 025 7005 CARBON 15K JA 1/6W ** R407 401 068 4700 CARBON 5.6K JA 1/2W R168 401 038 3009 MT-GLAZE 27K JA 1/10W ** R409 401 037 5004 MT-GLAZE 0.000 ZA 1/10W R168 401 038 2309 MT-GLAZE 27K JA 1/10W ** R409 401 037 5004 MT-GLAZE 0.000 ZA 1/10W R169 401 037 5400 MT-GLAZE 27K JA 1/10W ** R413 402 067 3305 MT-GLAZE 0.000 ZA 1/10W R206 401 024 6700 CARBON 1 KJ JA 1/10W ** R413 402 067 3305 MT-GLAZE 0.000 ZA 1/10W R206 401 024 6700 CARBON 1 KJ JA 1/10W ** R412 401 148 7201 MT-FLLM 1 KJ 1/10W R216 401 037 5400 MT-GLAZE 1 KJ JA 1/10W ** R422 401 052 6802 MT-FLLM 1 KJ 1/10W R216 401 037 5400 MT-GLAZE 1 KJ JA 1/10W R216 401 037 5400 MT-GLAZE 1 KJ JA 1/10W R216 401 038 9001 MT-GLAZE 608 JA 1/10W R216 401 037 5500 MT-GLAZE 1 KJ JA 1/10W R226 401 038 9001 MT-GLAZE 608 JA 1/10W R216 401 037 5500 MT-GLAZE 1 KJ JA 1/10W R226 401 038 9001 MT-GLAZE 680 JA 1/10W R221 401 037 5500 CARBON 68K JA 1/10W R226 401 038 9001 MT-GLAZE 680 JA 1/10W R224 401 037 5400 MT-GLAZE 1 KJ JA 1/10W R226 401 038 9001 MT-GLAZE 680 JA 1/10W R224 401 037 5400 MT-GLAZE 1 KJ JA 1/10W R226 401 038 9001 MT-GLAZE 680 JA 1/10W R224 401 037 5400 MT-GLAZE 1 KJ JA 1/10W R248 401 025 1902 CARBON 1 SK JA 1/10W R224 401 038 9001 MT-GLAZE 680 JA 1/10W R224 401 038 9001 MT-GLAZE 1 KJ JA 1/10W R248 401 025 1902 CARBON 1 SK JA 1/10W R224 401 038 9001 MT-GLAZE 1 KJ JA 1/10W R248 401 025 1902 CARBON 1 SK JA 1/10W R224 401 038 9001 MT-GLAZE 1 KJ JA 1/10W R248 401 027 5003 CARBON 1 SK JA 1/10W R224 401 038 9001 MT-GLAZE 1 KJ JA 1/10W R248 401 027 5003 CARBON 1 SK JA 1/10W R224 401 038 9001 MT-GLAZE 1 KJ JA 1/10W R248 401 027 5003 CARBON 1 SK JA 1/1		401 038 3702	MT-GLAZE	33K JA 1/10W	R376	401 038 7809	MT-GLAZE 56K JA 1/10W
R159						401 038 7700	
R161 401 037 9408 MT-GLAZE 180K JA 1/10W R404 401 026 3905 CARBON 330 JA 1/6W R163 401 038 0909 MT-GLAZE 220K JA 1/10W R406 401 026 3905 CARBON 330 JA 1/6W R163 401 038 0902 MT-GLAZE 220K JA 1/10W R406 401 010 8305 CARBON 5 KK JA 1/2W R164 401 022 7004 CARBON 15 KK JA 1/6W ★R407 401 686 4700 OXIDE-MT 4 7K JA 2W R167 401 025 2305 CARBON 15 KK JA 1/6W ★R407 401 686 4700 OXIDE-MT 4 7K JA 2W R168 401 038 2309 MT-GLAZE 270K JA 1/10W ★R413 402 067 3305 WIRE WOUND 4.7 KA 5W R169 401 037 5400 MT-GLAZE 1K JA 1/10W ★R413 402 067 3305 WIRE WOUND 4.7 KA 5W R169 401 037 5400 MT-GLAZE 1K JA 1/10W ★R413 402 067 3305 WIRE WOUND 4.7 KA 5W R202 401 024 7004 CARBON 1 KJA 1/6W ★R412 401 037 5704 WIRE WOUND 4.7 KA 5W R202 401 024 7004 CARBON 1 KJA 1/6W ★R412 401 037 5704 WIRE WOUND 4.7 KA 5W R202 401 024 7000 MT-GLAZE 1K JA 1/10W ★R421 401 148 7201 MT-FLLM 1.8K FA 1/6W R202 401 037 5806 MT-GLAZE 1 MJA 1/10W ★R422 401 052 6802 MT-FLLM 1.8K FA 1/6W R212 401 037 5806 MT-GLAZE 1 MJA 1/10W ★R423 401 052 6802 MT-FLLM 3.3K FA 1/6W R214 401 037 5806 MT-GLAZE 1 MJA 1/10W R466 401 038 9001 MT-GLAZE 680 JA 1/10W R221 401 037 5806 MT-GLAZE 1 MJA 1/10W R466 401 038 9001 MT-GLAZE 680 JA 1/10W R221 401 037 5806 MT-GLAZE 1 MJA 1/10W R466 401 038 9001 MT-GLAZE 680 JA 1/10W R221 401 037 5806 MT-GLAZE 1 MJA 1/10W R466 401 038 9001 MT-GLAZE 680 JA 1/6W R221 401 037 5806 MT-GLAZE 2 2.2K JA 1/10W R467 401 025 9008 CARBON 120 JA 1/6W R221 401 038 5804 MT-GLAZE 2.2K JA 1/10W R467 401 025 9008 CARBON 120 JA 1/6W R222 401 038 3804 MT-GLAZE 330 JA 1/10W R467 401 025 9008 CARBON 680 JA 1/6W R221 401 038 9009 MT-GLAZE 330 JA 1/10W R467 401 026 9008 CARBON 680 JA 1/6W R221 401 038 9009 MT-GLAZE 2.2K JA 1/10W R467 401 026 9008 CARBON 680 JA 1/6W R221 401 038 9009 MT-GLAZE 330 JA 1/10W R467 401 026 9008 CARBON 56K JA 1/6W R221 401 038 9009 MT-GLAZE 330 JA 1/10W R467 401 026 9008 CARBON 56K JA 1/6W R221 401 038 9009 MT-GLAZE 330 JA 1/10W R468 401 027 5005 CARBON 180K JA 1/6W R222 401 038 3603 MT-GLAZE 330 JA 1/10W R469 401 027 5005 CARBON 180K JA 1/6W R222 401 03							
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R221 401 037 5202 MT-GLAZE 100 JA 1/10W R460 401 024 9008 CARBON 120 JA 1/6W R222 401 037 5400 MT-GLAZE 1 K JA 1/10W R461 401 025 7409 CARBON 220 JA 1/6W R223 401 038 0701 MT-GLAZE 2.2K JA 1/10W R467 401 010 8305 CARBON 50.6K JA 1/2W R224 401 038 3504 MT-GLAZE 330 JA 1/10W R468 401 027 5205 CARBON 680 JA 1/6W R225 401 038 3504 MT-GLAZE 6.8K JA 1/10W R473 401 027 5205 CARBON 56K JA 1/6W R251 401 038 2099 MT-GLAZE 6.8K JA 1/10W R473 401 027 5205 CARBON 180K JA 1/6W R252 401 038 2009 MT-GLAZE 2.7K JA 1/10W R474 401 027 5205 CARBON 180K JA 1/6W R271 401 038 3803 MT-GLAZE 2.2K JA 1/10W R475 401 027 5205 CARBON 180K JA 1/6W R272 401 037 6803 MT-GLAZE 10K JA 1/10W R480 401 009 9006 CARBON 2.7 JB 1/2W R273 401 037 6803 MT-GLAZE <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>							
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R271 401 038 0800 MT-GLAZE 22K JA 1/10W R475 401 027 5205 CARBON 680 JA 1/6W R272 401 038 3603 MT-GLAZE 3.3K JA 1/10W R480 401 009 0006 CARBON 27 JB 1/2W R273 401 037 5608 MT-GLAZE 10K JA 1/10W ★ R481 401 009 4905 CARBON 33 JB 1/2W R276 401 037 6803 MT-GLAZE 12K JA 1/10W ★ R482 401 011 9004 CARBON 1 JB 1/2W R281 401 026 4308 CARBON 3.3K JA 1/6W ★ R483 401 006 7701 CARBON 1 JB 1/2W R287 401 037 5202 MT-GLAZE 100 JA 1/10W R485 401 037 9309 MT-GLAZE 18K JA 1/10W R288 401 037 5202 MT-GLAZE 100 JA 1/10W ★ R486 401 065 1801 OXIDE-MT 12 JA 2W R301 401 037 5400 MT-GLAZE 100 JA 1/10W ★ R489 401 065 9609 OXIDE-MT 18 JA 2W R302 401 037 7909 MT-GLAZE 1.5K JA 1/10W R491 401 012 5708 CARBON 1K JA 1/4W R303 401 037 5400 MT-GLAZE							
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R288 401 037 5202 MT-GLAZE 100 JA 1/10W ★ R486 401 065 1801 OXIDE-MT 12 JA 2W R289 401 037 5202 MT-GLAZE 100 JA 1/10W R487 401 026 6609 CARBON 390 JA 1/6W R301 401 037 5400 MT-GLAZE 1K JA 1/10W ★ R489 401 065 9609 OXIDE-MT 18 JA 2W R302 401 037 7909 MT-GLAZE 1.5K JA 1/10W R491 401 012 5708 CARBON 1K JA 1/4W R303 401 038 7700 MT-GLAZE 5.6K JA 1/10W R492 401 097 3903 MT-FILM 39K FA 1/6W R304 401 037 5400 MT-GLAZE 1K JA 1/10W R493 401 018 5801 CARBON 330K JA 1/4W R305 401 037 5202 MT-GLAZE 100 JA 1/10W R494 401 018 5801 CARBON 330K JA 1/4W R306 401 024 7004 CARBON 1K JA 1/6W ★ R497 401 064 5305 OXIDE-MT 1.5 JA 2W R307 401 037 7909 MT-GLAZE 1.5K JA 1/10W ★ R498 401 011 4306 CARBON	R281	401 026 4308	CARBON	3.3K JA 1/6W	★ R483	401 006 7701	CARBON 1 JB 1/2W
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R301		401 037 5202	MT-GLAZE		★ R486	401 065 1801	OXIDE-MT 12 JA 2W
R302		401 037 5202		100 JA 1/10W	R487	401 026 6609	CARBON 390 JA 1/6W
R303 401 038 7700 MT-GLAZE 5.6K JA 1/10W R492 401 097 3903 MT-FILM 39K FA 1/6W R304 401 037 5400 MT-GLAZE 1K JA 1/10W R493 401 018 5801 CARBON 330K JA 1/4W R305 401 037 5202 MT-GLAZE 100 JA 1/10W R494 401 018 5801 CARBON 330K JA 1/4W R306 401 024 7004 CARBON 1K JA 1/6W ★ R497 401 064 5305 OXIDE-MT 1.5 JA 2W R307 401 037 7909 MT-GLAZE 1.5K JA 1/10W ★ R498 401 011 4306 CARBON 8.2 JA 1/2W R308 401 037 5400 MT-GLAZE 1K JA 1/10W R503 401 027 2600 CARBON 5.6K JA 1/6W R309 401 027 5205 CARBON 680 JA 1/6W R504 401 027 5502 CARBON 6.8K JA 1/6W ★ R310 401 010 2501 CARBON 47 JA 1/2W R505 401 006 8401 CARBON 1.5 JA 1/2W ★ R311 401 010 2501 CARBON 47 JA 1/2W R506 401 027 5205 CARBON 680 JA 1/6W ★ R312 401 039 0304 MT-GLAZE <t< td=""><td></td><td></td><td></td><td></td><td>★ R489</td><td>401 065 9609</td><td></td></t<>					★ R489	401 065 9609	
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- 1557 - 401 030 2001 - 20150 871 - 050 38 17 1000 - 8505 - 701 107 070 - 152800 - 177 17 17800	R332	401 039 0304	MT-GLAZE	680 JA 1/10W	R508	401 006 8807	CARBON 1.8 JA 1/2W CARBON 12K JA 1/6W
R333 401 037 7909 MT-GLAZE 1.5K JA 1/10W R509 401 027 5502 CARBON 6.8K JA 1/6W							
R334 401 024 7004 CARBON 1K JA 1/6W ★ R511 401 060 7402 OXIDE-MT 270 JA 1W							
R341 401 024 7004 CARBON 1K JA 1/6W R517 401 025 4606 CARBON 18K JA 1/6W							
R342 401 024 7004 CARBON 1K JA 1/6W R518 401 025 4606 CARBON 18K JA 1/6W							
R343 401 038 0701 MT-GLAZE 2.2K JA 1/10W ★ R601 402 064 2905 WIRE WOUND 1 KA 7W							
R347 401 037 5608 MT-GLAZE 10K JA 1/10W 402 072 3000 WIRE WOUND 1 KA 7W							
R348 401 037 5608 MT-GLAZE 10K JA 1/10W ★ R602 402 000 0705 SOLID 3.3M KA 1/2W					★ R602		

Schematic		<u> </u>		Schematic			
Location	Part No.	Des	cription	Location	Part No.	Des	cription
R603	401 007 2309	CARBON	100K JA 1/2W	R826	401 038 6406	MT-GLA7F	4.7K JA 1/10W
★ R604	401 064 6302	OXIDE-MT	10 JA 2W	R827	401 038 7700	MT-GLAZE	5.6K JA 1/10W
★ R613	401 068 6902	OXIDE-MT	56 JA 2W	R828	401 026 4605	CARBON	33K JA 1/6W
R614	401 011 1107	CARBON	68 JA 1/2W	R831	401 037 5707	MT-GLAZE	100K JA 1/10W
R615	401 014 5201	CARBON	15K JA 1/4W	R833	401 024 7400	CARBON	10K JA 1/6W
R616	401 026 2809	CARBON	3K GA 1/6W	R835	401 026 1000	CARBON	2.7K JA 1/6W
R617	401 099 1501	CARBON	680 GA 1/6W	R842	401 027 2303	CARBON	560 JA 1/6W
★ R618	401 068 6902	OXIDE-MT	56 JA 2W	R843	401 027 2303	CARBON	560 JA 1/6W
R619	401 025 8208	CARBON	22K JA 1/6W	R844	401 027 2303	CARBON	560 JA 1/6W
R620	401 027 2600	CARBON	5.6K JA 1/6W	R846	401 037 5400	MT-GLAZE	1K JA 1/10W
R621	401 026 9907	CARBON	4.7K JA 1/6W	R847	401 027 2600	CARBON	5.6K JA 1/6W
R622	401 026 2809	CARBON	3K GA 1/6W	R848	401 027 2600	CARBON	5.6K JA 1/6W
R627	401 037 5608	MT-GLAZE	10K JA 1/10W	R849	401 027 2600	CARBON	5.6K JA 1/6W
R628	401 013 5301	CARBON	1.2K JA 1/4W	R851	401 037 5400	MT-GLAZE	1K JA 1/10W
R629	401 024 7004	CARBON	1K JA 1/6W	R852	401 038 5300	MT-GLAZE	39K JA 1/10W
★ R630	401 060 5002	OXIDE-MT	22K JA 1W	R853	401 037 5806	MT-GLAZE	1M JA 1/10W
R631	401 022 3107	CARBON	6.8K JA 1/4W	R854	401 038 0701	MT-GLAZE	2.2K JA 1/10W
R632	401 024 7004	CARBON	1K JA 1/6W	R856	401 037 5202	MT-GLAZE	100 JA 1/10W
R634	401 027 0309	CARBON	47K JA 1/6W	R857	401 037 5202	MT-GLAZE	100 JA 1/10W
R683	401 026 9907	CARBON	4.7K JA 1/6W	R859	401 037 5608	MT-GLAZE	10K JA 1/10W
R686	401 016 1508	CARBON	22 JA 1/4W	R862	401 024 6700	CARBON	100 JA 1/6W
R687	401 025 8208	CARBON	22K JA 1/6W	R864	401 038 5300	MT-GLAZE	39K JA 1/10W
R688	401 037 6803	MT-GLAZE	12K JA 1/10W	R872	401 025 1902	CARBON	15K JA 1/6W
R691	401 024 7400	CARBON	10K JA 1/6W	R873	401 038 0800	MT-GLAZE	22K JA 1/10W
R692	401 027 5908	CARBON	68K JA 1/6W	R881	401 037 5202	MT-GLAZE	100 JA 1/10W
R693	401 027 3201	CARBON	560K JA 1/6W	R882	401 037 5202	MT-GLAZE	100 JA 1/10W
R694	401 024 7400	CARBON	10K JA 1/6W	R883	401 024 6700	CARBON	100 JA 1/6W
R695	401 025 8208	CARBON	22K JA 1/6W	R884	401 024 6700	CARBON	100 JA 1/6W
R701	401 025 3807	CARBON	180 JA 1/6W	R886	401 024 7400	CARBON	10K JA 1/6W
R702	401 037 6704	MT-GLAZE	1.2K JA 1/10W	R1001	401 027 8107	CARBON CARBON	82 JA 1/6W 82 JA 1/6W
R703	401 037 6704	MT-GLAZE	1.2K JA 1/10W	R1002	401 027 8107	MT-GLAZE	10K JA 1/10W
R704	401 027 8107	CARBON	82 JA 1/6W	R1003 R1004	401 037 5608 401 038 2200	MT-GLAZE	27K JA 1/10W
R706	401 009 1508	CARBON	2.7K JA 1/2W 12K JA 2W	R1004	401 036 2200	CARBON	470 JA 1/6W
★ R707	401 065 4604 401 025 3807	OXIDE-MT CARBON	180 JA 1/6W	R1007	401 038 6406	MT-GLAZE	4.7K JA 1/10W
R711 R712	401 025 3607	MT-GLAZE	1.2K JA 1/10W	R1007	401 027 6608	CARBON	75 JA 1/6W
R712	401 037 6704	MT-GLAZE	1.2K JA 1/10W	R1012	401 038 2200	MT-GLAZE	27K JA 1/10W
R713	401 037 0704	MT-GLAZE	82 JA 1/10W	R1013	401 024 9701	CARBON	12K JA 1/6W
R71 4	401 009 1508	CARBON	2.7K JA 1/2W	R1071	401 038 6307	MT-GLAZE	470 JA 1/10W
★ R717	401 065 4604	OXIDE-MT	12K JA 2W	R1081	401 025 8208	CARBON	22K JA 1/6W
R721	401 025 3807	CARBON	180 JA 1/6W	R1082	401 038 0800	MT-GI AZF	22K JA 1/10W
R722	401 037 6704	MT-GLAZE	1.2K JA 1/10W	R1901	401 024 7400	CARBON	10K JA 1/6W
R723	401 037 6704	MT-GLAZE	1.2K JA 1/10W	R1902	401 024 7004	CARBON	1K JA 1/6W
R724	401 027 8107	CARBON	82 JA 1/6W	R1903	401 037 9200	MT-GLAZE	1.8K JA 1/10W
R726	401 009 1508	CARBON	2.7K JA 1/2W	R1904	401 038 0701	MT-GLAZE	2.2K JA 1/10W
★ R727	401 065 4604	OXIDE-MT	12K JA 2W	R1905	401 038 5102	MT-GLAZE	3.9K JA 1/10W
R803	401 037 5202	MT-GLAZE	100 JA 1/10W	R1906	401 038 7700	MT-GLAZE	5.6K JA 1/10W
R804	401 037 5202	MT-GLAZE	100 JA 1/10W	R1907	401 037 6803	MT-GLAZE	12K JA 1/10W
R806	401 038 6406	MT-GLAZE	4.7K JA 1/10W	R1909	401 024 7004	CARBON	1K JA 1/6W
R807	401 037 5608	MT-GLAZE	10K JA 1/10W	R1910	401 024 7004	CARBON	1K JA 1/6W
R808	401 037 5608	MT-GLAZE	10K JA 1/10W	R3401	401 038 0602	MT-GLAZE	220 JA 1/10W
R809	401 038 6406	MT-GLAZE	4.7K JA 1/10W	R3402	401 038 0602	MT-GLAZE	220 JA 1/10W
R810	401 024 7400	CARBON	10K JA 1/6W	R3406	401 037 5707	MT-GLAZE	100K JA 1/10W
R813	401 037 5608	MT-GLAZE	10K JA 1/10W	R3407	401 037 5806	MT-GLAZE	1M JA 1/10W
R814	401 037 5608	MT-GLAZE	10K JA 1/10W	R3411	401 152 9604	MT-GLAZE	62K FA 1/10W
R816	401 038 3504	MT-GLAZE	330 JA 1/10W	R3421	401 038 3603	MT-GLAZE	3.3K JA 1/10W
R821	401 037 7909	MT-GLAZE	1.5K JA 1/10W	R3422	401 038 3009	MT-GI A7F	3K JA 1/10W
R822	401 037 9101	MT-GLAZE	180 JA 1/10W	R3426	401 038 5102	MT-GLAZE	3.9K JA 1/10W
R823	401 024 9701	CARBON	12K JA 1/6W	R3432	401 037 5608	MT-GLAZE	10K JA 1/10W

Schematic	Part No.	Description	Schematic	Part No.	Description
Location		Description	Location		Description
R3433	401 037 5608	MT-GLAZE 10K JA 1/10W		MISCELLAI	NEOUS
R3434	401 038 7601	MT-GLAZE 560 JA 1/10W	A100	610 284 7147	ASSY, PWB, MAIN
R3435	401 037 5707	MT-GLAZE 100K JA 1/10W	★ A101	645 040 5150	Tuner, u/v
R3436	401 038 7601	MT-GLAZE 560 JA 1/10W	A700	610 281 9472	ASSY, PWB, SOCKET
R3437	401 037 5707	MT-GLAZE 100K JA 1/10W	A1000	610 281 9441	ASSY, PWB, AV
R3445	401 038 3801	MT-GLAZE 330K JA 1/10W	A1901	645 027 4213	UNIT, REMOCON RECEIVER
R3446	401 037 5202	MT-GLAZE 100 JA 1/10W	★ F601	423 018 8101	FUSE 125V 4A
R3447	401 038 3801	MT-GLAZE 330K JA 1/10W		423 007 1601	FUSE 125V 4A
R3448	401 037 5202	MT-GLAZE 100 JA 1/10W		423 007 1809	FUSE 125V 4A
			F601A	645 000 5077	HOLDER, FUSE
	CWITCHEC			645 016 0479	HOLDER, FUSE
0114004	SWITCHES	OWITCH BUSH (BOWED)	F601B	645 000 5077	HOLDER, FUSE
SW1901	645 027 7382	SWITCH, PUSH (POWER)		645 016 0479	HOLDER, FUSE
SW1902	645 027 7382	SWITCH, PUSH (VOL +)	★ K701	645 025 6103	SOCKET, CRT 8P
SW1903	645 027 7382	SWITCH, PUSH (VOL -)	K1001	645 032 1979	JACK, RCA-3
SW1904	645 027 7382	SWITCH, PUSH (CH ▲)	K1011	610 010 3665	JACK, RCA
SW1905	645 027 7382	SWITCH, PUSH (CH ▼)	K1021	610 010 3672	JACK, RCA
SW1906	645 027 7382	SWITCH, PUSH (MENU)	K1051	610 010 8295	SOCKET, DIN 4P
			★ PS601	408 038 5606	THERMISTOR PTH451A300BG3
	TRANSFOR	MEDO		408 041 8205	THERMISTOR PTH451A3R0Q11
T101	645 027 6095		★ Q900	414 010 6103	CRT M78JUA361X71
T131		TRANS, IF 4.5MHZ	★ RL601	645 000 4155	RELAY
T151	645 027 6088	TRANS, OSC 45.75MHZ DRIVE TRANS		645 011 2713	RELAY
T401	610 000 1138 610 223 1663	DRIVE TRANS		645 024 7828	RELAY
★ T402	645 032 8978			645 015 8629	RELAY
# 1 4 02	645 018 9579	TRANS, FLYBACK		645 024 7767	RELAY
★ T601	645 035 9910	TRANS, FLYBACK TRANS, POWER, PULSE	SP901	645 013 6306	SPEAKER, 8
× 1001	645 040 1527	TRANS, POWER, PULSE	SP902	645 013 6306	SPEAKER, 8
	040 040 1027	THAINS, FOWEN, FOLSE	VR461	645 003 5531	VR, SEMI,10K N (H-WIDTH)
				645 011 6988	VR, SEMI,10K N
	CRYSTAL/F	IITERS		645 019 6003	VR, SEMI,10K N
X141	421 006 3206	SAW F TSF5221P	★ W601	645 034 8518	CORD, POWER
Alti	421 008 9008	SAW F TSF5235P	★ W900	610 264 8362	ASSY, WIRE GND CONNECTOR
X153	610 015 2946	CERAMIC FILTER 4.5MHZ		610 267 0325	ASSY, WIRE GND CONNECTOR
7,100	645 030 1049	CERAMIC FILTER 4.5MHZ			
	645 041 1656	CERAMIC FILTER 4.5MHZ			
X161	610 015 3059	TRAP, CERAMIC 4.5MHZ			
7.101	645 041 1618	TRAP, CERAMIC 4.5MHZ			
X251	610 204 4195	CRYSTAL OSCILLATOR			
	610 245 9746	CRYSTAL OSCILLATOR			
	610 012 0655	CRYSTAL OSCILLATOR			
X401	645 020 9147	OSC, CERAMIC 507.5KHZ			
	645 033 1596	OSC, CERAMIC 503KHZ			
X801	645 000 6692	OSC, CERAMIC 8.00MHZ			
,,,,,,,	645 021 5483	OSC, CERAMIC 8.00MHZ			
	3.3 02. 0.00	200, 02:0 mill 0:00mil2			

CABINET PARTS LIST



CABINET PARTS LIST

ACCESSORY PARTS LIST

KEY NO.	PARTS NO.	DESCRIPTION	KEY NO.	PARTS NO.	DESCRIPTION
1	610 275 0027	CABINET FRONT ASSY		610 282 3325	OWNER'S MANUAL
OR	610 280 8599	CABINET FRONT ASSY		645 040 2845	RC TRANSMITTER
2A	610 268 9679	CRT MTG WASHER 2.5MM (2 TOP)		610 278 3186	RC BATTERY COVER
2B	610 268 9655	CRT MTG WASHER 2.0MM (2 BTM)			
3	412 053 3905	CRT MTG SCREW 6X35 (4 USED)			
4	610 102 7151	DC HOLDER (4 USED)			
5	610 281 9625	CABINET BACK			
OF	610 281 4163	CABINET BACK			
6	412 036 1805	SCREW 4X14 (12 USED)			
OF	411 078 1101	SCREW 4X14 (12 USED)			
7	610 283 6806	DEC AV SHEET			
8	610 275 4049	BUTTON UNIT			
9	610 265 3786	CAP RC			
10	610 276 6349	DEC SHEET			
11	610 236 9274	SANYO BADGE			

COMPONENT AND TESTPOINT LOCATIONS

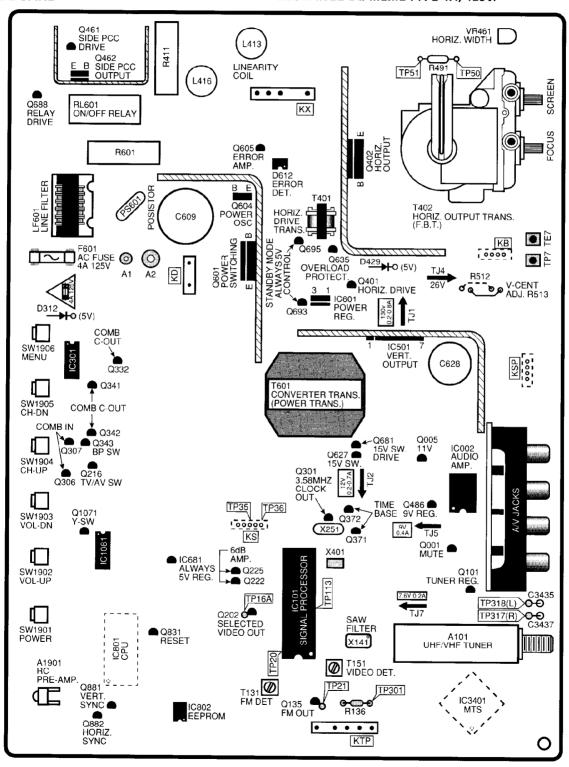
CAUTION



FOR CONTINUED PROTECTION AGAINST A RISK OF FIRE, REPLACE ONLY WITH THE SAME TYPE 4A, 125V FUSE.

ATTENTION: POUR MAINTENIR LA PRO-TECTION CONTRE LES RISQUES D'INCENDIE UTILISER UN FUSIBLE DE RECHANGE DE MEMETYPE 4A, 125V.

MAIN BOARD



SCHEMATIC DIAGRAMS

NOTES ON SCHEMATIC DIAGRAMS

- 1. All resistance values in ohms K=1,000 M=1,000,000.
- 2. Unless otherwise noted on schematic, all capacitor values less than 1 are expressed in µF (Micro Farad), and the values more than 1 are in pF.
- 3. Unless otherwise noted on schematic, voltage reading taken with VOM from point indicated to chassis ground. Voltage reading taken using color-bar signal VHF channel 5, all controls at normal. Line voltage at 120 volts. Some voltages may vary with signal strength.
- 4. Waveforms were taken with color-bar signal and controls adjusted for normal picture. Waveforms marked with an * may vary with signal strength.
- 5. The Symbol 🛞 indicates a fusible resistor, which protects the circuit from possible short circuits.

SERVICE NOTES:

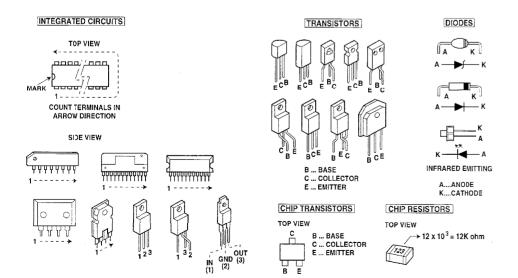
- 1. When replacing parts on circuit boards, clamp the lead wires to terminals before soldering.
- 2. When replacing high wattage resistors on circuit board, keep the resistor body 10 mm (3/8) from circuit board.
- 3. Keep wires away from high voltage and high temperature components.

PRODUCT SAFETY NOTICE

THE COMPONENTS DESIGNATED BY A STAR (*) ON THIS SCHEMATIC DIAGRAM DESIGNATE COMPONENTS WHOSE VALUES ARE OF SPECIAL SIGNIFICANCE TO PRODUCT SAFETY. SHOULD ANY COMPONENT DESIGNATED BY A STAR NEED TO BE REPLACED, USE ONLY THE PART DESIGNATED IN THE PARTS LIST. DO NOT DEVIATE FROM THE RESISTANCE, WATTAGE AND VOLTAGE RATINGS SHOWN.

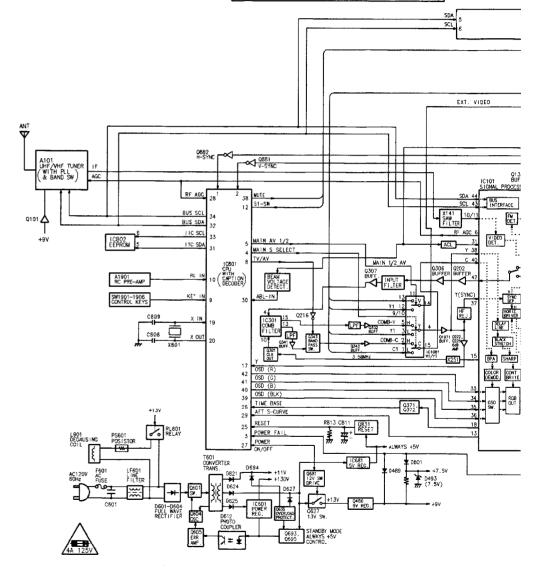
X-RADIATION WARNING NOTE

THIS TV CONTAINS CRITICAL PARTS TO PROTECT AGAINST X-RADIATION. NOMINAL 2ND ANODE VOLTAGE IS 30.0KV AT ZERO BEAM CURRENT AT 120 VOLTS AC LINE, AND MUST NOT EXCEED 31.0KV UNDER ANY OPERATING CONDITION. SEE HIGH VOLTAGE CHECK ON PAGE 7.



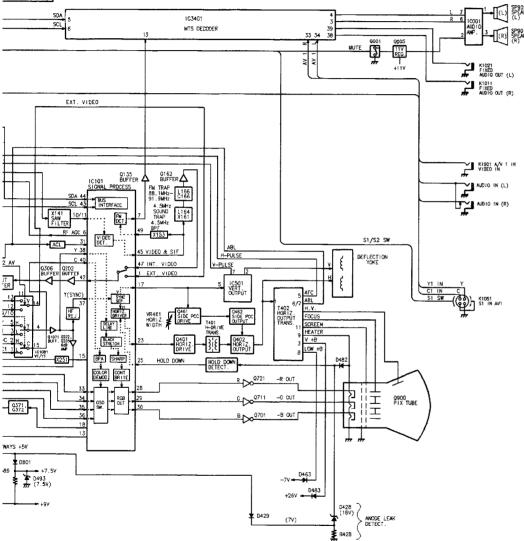
BLOCK DIAGRAM

CAUTION FOR CONTINUED PROTECTION AGAINST
A RISK OF FIRE, REPLACE ONLY WITH
HE SAME TYPE 4A, 125V FUSE.
ATTENTION: POUR MAINTENIR LA PROTECTION
CONTRE LES RISQUES D'INCENDIE UTILISER UN
FUSIBLE DE RECHANGE DE MEME TYPE 4A, 125V.



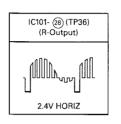
VOLTAGE CHARTS

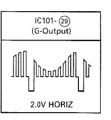


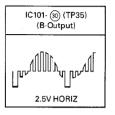


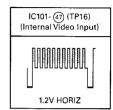
WAVEFORMS

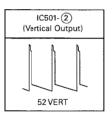
NOTE: Waveforms were taken with color bar signal and the controls adjusted for normal picture.

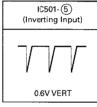


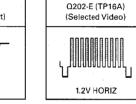


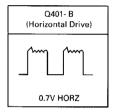


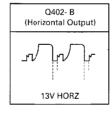


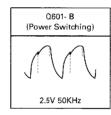


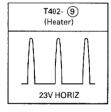


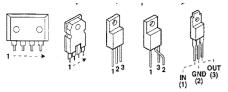








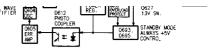












VOLTAGE CHARTS

NOTE: Voltages were measured using color bar signal and the controls adjusted for normal picture.

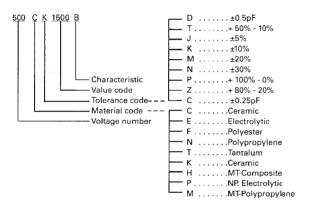
D612-1 D612-2 D612-3	POWER ON: 31.6 POWER ON: 30.7	POWER OFF: N/A
	POWER ON:	IN/A
	30.7	
	POWER ON:	N/A POWER OFF:
D612-4	–.3 POWER ON: 7.5	0.6 POWER OFF: 1.1
IC002-1	7.7	1.1
IC002-2	11.0	
IC002-3	7.7	
IC002-4	GND	
IC002-5	N.C.	
IC002-6	1.4	
IC002-7	1.4	
IC002-8	GND	
IC101-1	1.6	
IC101-2	6.8	
IC101-3	6.8	
IC101-4	7.6	
IC101-5	3.9	
IC101-6		
IC101-7	1.7 3.4	
IC101-8	1.3	
IC101-9	GND	
IC101-10	3.8	····
IC101-11	3.8	
IC101-12	5.0	
IC101-13	3.4	
IC101-14	5.8	
IC101-15	4.0	
IC101-16	3.5	
IC101-17	3.8	
IC101-17	6.2	
IC101-18	4.6	
IC101-13	GND	
IC101-21	7.5	
IC101-22	5.2	
IC101-23	0.6	
IC101-24	0.8	
IC101-25	0.0	
IC101-26	7.6	
IC101-27	GND GND	
IC101-28	2.8	
IC101-29	2.7	
IC101-30	2.7	
IC101-31	4.8	
IC101-32	7.6	
IC101-33	3.5	
IC101-34	3.5	
IC101-35	3.5	

Device/Pin #	Volts	/Mode
IC101-36	0.4	
IC101-37	5.1	
IC101-38	3.5	
IC101-39	3.6	
IC101-40	3.3	
IC101-41	3.2	
IC101-42	4.2	
IC101-43	3.3	
IC101-44	3.3	
IC101-45	3.5	
IC101-46	GND	
IC101-47	4.3	
IC101-48	3.9	
IC101-49	2.5	
IC101-50	3.8	
IC101-51	N.C.	
IC101-52	4.6	
IC301-1	GND	
IC301-2	2.2	
IC301-3	2.7	
IC301-4	2.2	
IC301-5	1.3	
IC301-6	0	
IC301-7	0	
IC301-8	4.9	
IC301-9	0	
IC301-10	2.2	
IC301-11	2.2	
IC301-12	3.4	
IC301-13	3.7	
IC301-14	1.8	
IC301-15	2.7	
IC301-16	4.9	
IC501-1	GND	
IC501-2	14.4	
IC501-3	27.1	
IC501-4	3.8	
IC501-5	3.8	
IC501-6	26.2	
IC501-7	2.8	
IC601-1	GND	
	POWER ON:	POWER OFF:
IC601-2	30.7	N/A
IC601-3	POWER ON: 129	POWER OFF: 74.7
IC€81-1	POWER ON:	POWER OFF:
(IN)	11.6	7.3
IC681-2	GND	
IC681-3 (OUT)	POWER ON: 5.0	POWER OFF: 5.0

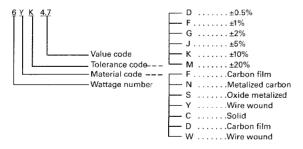
Device/Pin#	Volts/Mode	Devi
IC801-1	4.1	IC10
IC801-2	4.73	IC10
IC801-3	4.9	IC10
IC801-4	0	IC10
IC801-5	0	IC10
IC801-6	0	IC10
IC801-7	0	IC10
IC801-8	TV: 0 AV: 4.4	IC10
IC801-9	0	IC10
IC801-10	5.0	IC10
IC801-11	0.2	IC10
IC801-12	4.8	IC10
IC801-13	0.3	IC10
IC801-14	5.0	IC10
IC801-15	2.1	IC10
IC801-16	0.2	IC10
IC801-17	2.2	IC34
IC801-18	GND	IC34
IC801-19	2.2	IC34
IC801-20	2.0	IC34
IC801-21	GND	IC34
IC801-22	5.0	IC34
IC801-23	N.C.	IC34
IC801-24	GND	IC34
IC801-25	5.0	IC34
IC801-26	3.5	IC34
IC801-27	POWER ON: POWER OFF:	IC34
10001-27	4.9 0	IC34
IC801-28	1.7	IC34
IC801-29	2.1	IC34
IC801-30	0	IC34
IC801-31	4.9	IC34
IC801-32	3.4	IC34
IC801-33	4.9	IC34
IC801-34	3.6	IC34
IC801-35	5.0	IC34
IC801-36	5.0	IC34
IC801-37	5.0	IC34
IC801-38	GND	IC34
IC801-39	0.3	1C34
IC801-40	0	IC34
IC801-41	0	IC34
IC801-42	0	IC34
IC802-1	GND	IC34
C802-2	GND	IC34
IC802-3	GND	IC34
IC802-4	GND	IC34
IC802-5	4.9	IC34
IC802-6	4.9	IC34
IC802-7	GND	IC34
IC802-8	5.0	IC34

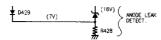
CAPACITOR AND RESISTOR CODE CHART

CAPACITOR (Example)



RESISTOR (Example)





Volts/Mode		
4.1		
4.73		
4.9		
0		
0		
0		
0		
	AV: 4.4	
0	AV. 4.4	
5.0		
0.2		
4.8		
0.3		
5.0		
2.1		
0.2		
2.2		
GND		
2.2		
2.0		
GND		
5.0		
N.C.		
GND		
5.0		
3.5		
POWER ON:	POWER OFF:	
POWER ON: 4.9	0	
1.7		
2.1		
0		
4.9		
3.4		
4.9		
3.6		
5.0		
5.0	-	
5.0		
GND		
0.3		
0		
0		
GND		
4.9		
4.9		
GND		
5.0		

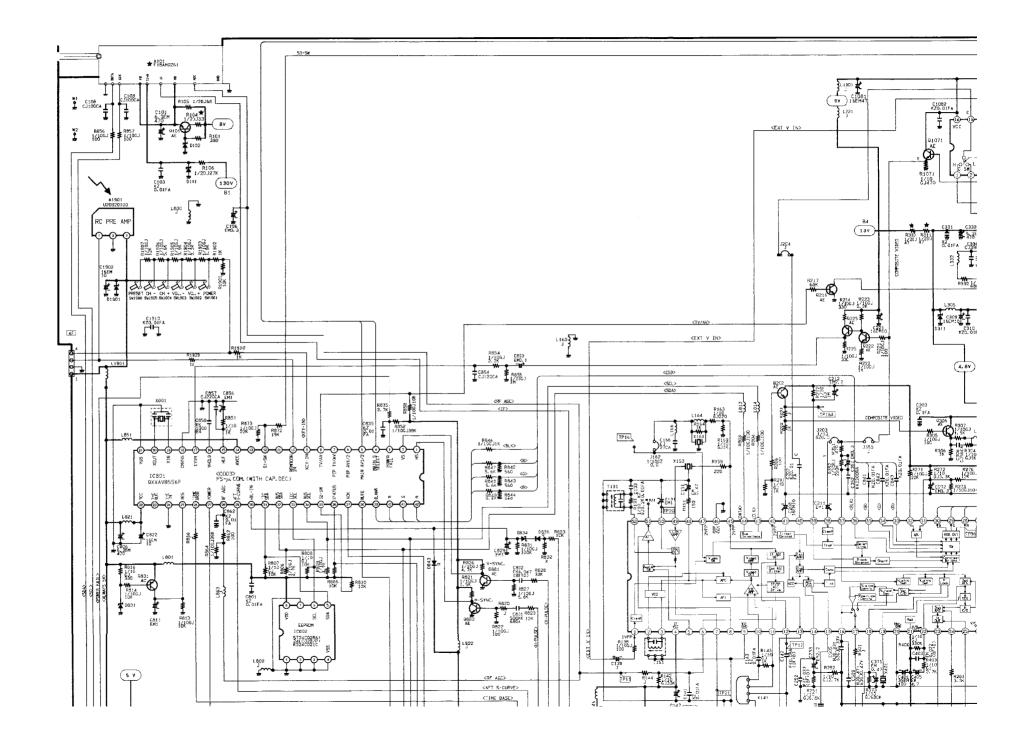
Device/Pin #	Volts/Mode
IC1081-1	6.2
IC1081-2	1.7
IC1081-3	2.7
IC1081-4	2.6
IC1081-5	2.6
IC1081-6	GND
IC1081-7	GND
IC1081-8	GND
IC1081-9	0
IC1081-10	0
IC1081-11	0
IC1081-12	2.7
IC1081-13	2.4
IC1081-14	2.7
IC1081-15	1.7
IC1081-15	9.1
IC3401-1	4.1
IC3401-1	4.1
IC3401-2	4.1
IC3401-4	4.1
IC3401-5	3.4
IC3401-6	3.3
IC3401-7	GND
IC3401-8	4.1
IC3401-9	4.1
IC3401-10	4.1
IC3401-11	4.1
IC3401-12	4.9
IC3401-13	4.1
IC3401-14	1.3
IC3401-15	1.3
IC3401-16	0
IC3401-17	GND
IC3401-18	3.6
IC3401-19	9.1
IC3401-20	0
IC3401-21	4.1
IC3401-22	4.1
IC3401-23	3.7
IC3401-24	4.0
IC3401-25	4.1
IC3401-26	4.1
IC3401-27	4.1
IC3401-28	1.9
IC3401-29	4.1
IC3401-30	4.1
IC3401-31	2.0
IC3401-32	4.1
IC3401-32	4.1
IC3401-33	4.1
IC3401-34	4.1
C5401-35	4.1

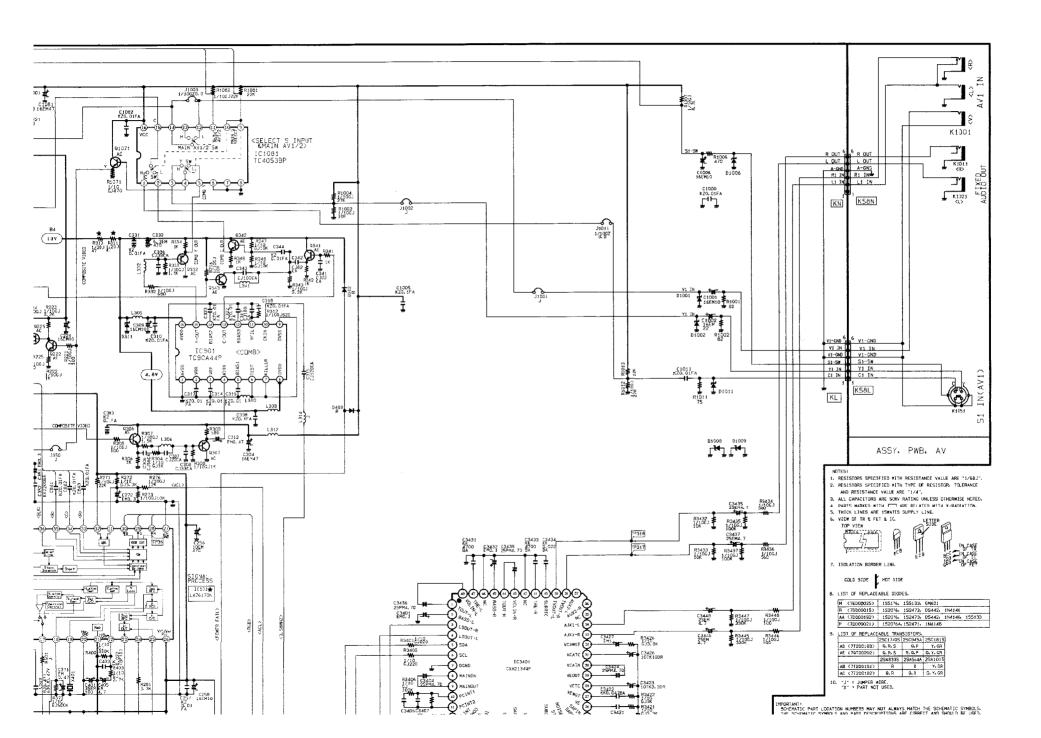
Device/Pin #	Volts/Mode
IC3401-36	4.1
IC3401-37	4.1
IC3401-38	4.1
IC3401-39	4.1
IC3401-40	4.1
IC3401-41	4.1
IC3401-42	GND
IC3401-43	4.1
IC3401-44	4.1
IC3401-45	4.1
IC3401-46	GND
IC3401-47	4.1
IC3401-48	4.1
Q001-B	POWER ON: POWER OFF: 0 0.7
Q001-C	POWER ON: POWER OFF: 7.7 0
Q001-E	GND
Q005-B	10.3
Q005-C	11.0
Q005-E	11.0
Q101-B	5.7
Q101-C	6.9
Q101-E	5.0
Q135-B	3.6
Q135-C	7.6
Q135-E	3.0
Q202-B	4.2
Q202-C	7.6
Q202-E	3.5
Q216-B	TV:0 AV: 0.6
Q216-C	TV:0.7 AV: 0
Q216-E	GND
Q222-B	1.9
0222-B	6.1
0222-E	1.3
0225-B	6.1
0225-C	2.1
0225-E	6.8
Q301-B	0.6
Q301-B	4.1
Q301-C	GND
0306-B	3.5
Q306-C	9.1
Q306-E	2.9
0307-B	1.1
Q307-C	GND
Q307-E	1.8
Q332-B	2.1
Q332-C	GND
Q332-E	2.7

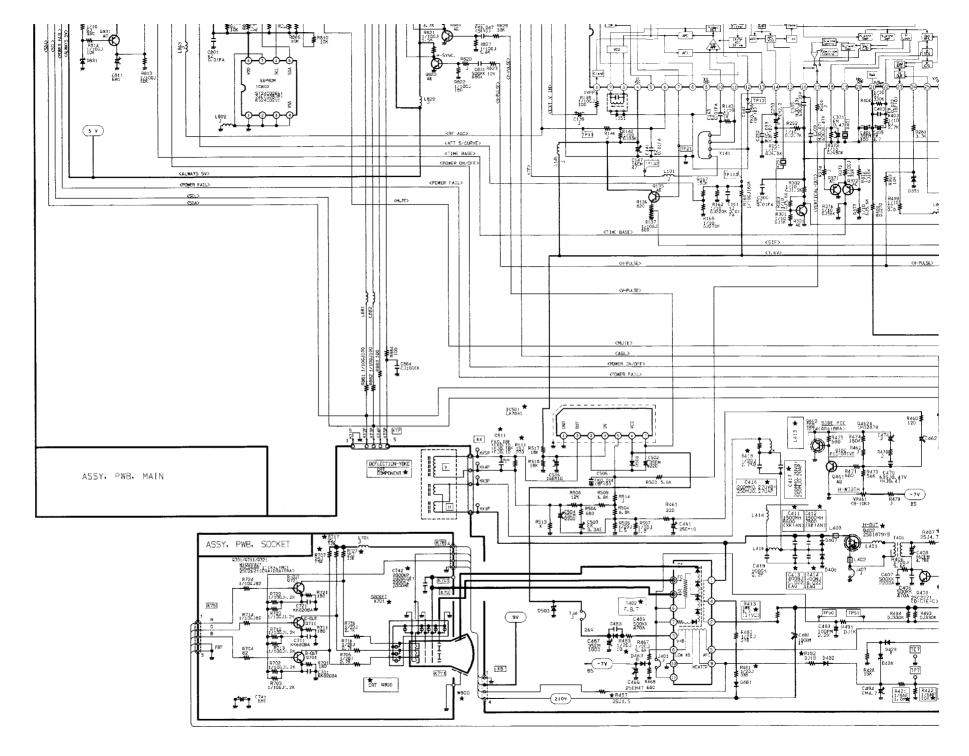
Device/Pin#	Volts	/Mode
Q341-B	3.7	
Q341-C	4.8	
Q341-E	2.9	
Q342-B	2.4	
Q342-C	4.8	
Q342-E	1.8	
Q343-B	TV: 0.7	AV: 0
Q343-C	TV: 0	AV: 0
Q343-E	GND	
Q371-B	6.1	
Q371-C	GND	
Q371-E	3.5	
Q372-B	3.0	
Q372-C	3.5	
Q372-E	3.5	
Q401-B	0.4	
Q401-C	37.3	
Q401-E	GND	
Q402-B	3.8	
Q402-C	128.4	
Q402-E	3.8	
Q461-B	0.6	
Q461-C	9.2	
Q461-E	GND	
Q462-B	9.2	
Q462-C	GND	_
Q462-E	9.8	
Q486-B	9.9	
Q486-C	10.1	
Q486-E	9.1	
Q601-B	POWER ON: -0.3	POWER OFF: 0
Q601-C	POWER ON: 161.4	POWER OFF: 169.6
Q601-E	GND	
Q604-B	POWER ON: -1.6	POWER OFF: 0.6
Q604-C	POWER ON: -0.3	POWER OFF:
Q604-E	GND	
Q605-B	POWER ON: 7.7	POWER OFF: 1.2
Q605-C	POWER ON: -0.3	POWER OFF: 0.6
Q605-E	POWER ON: 8.1	POWER OFF: 1.8

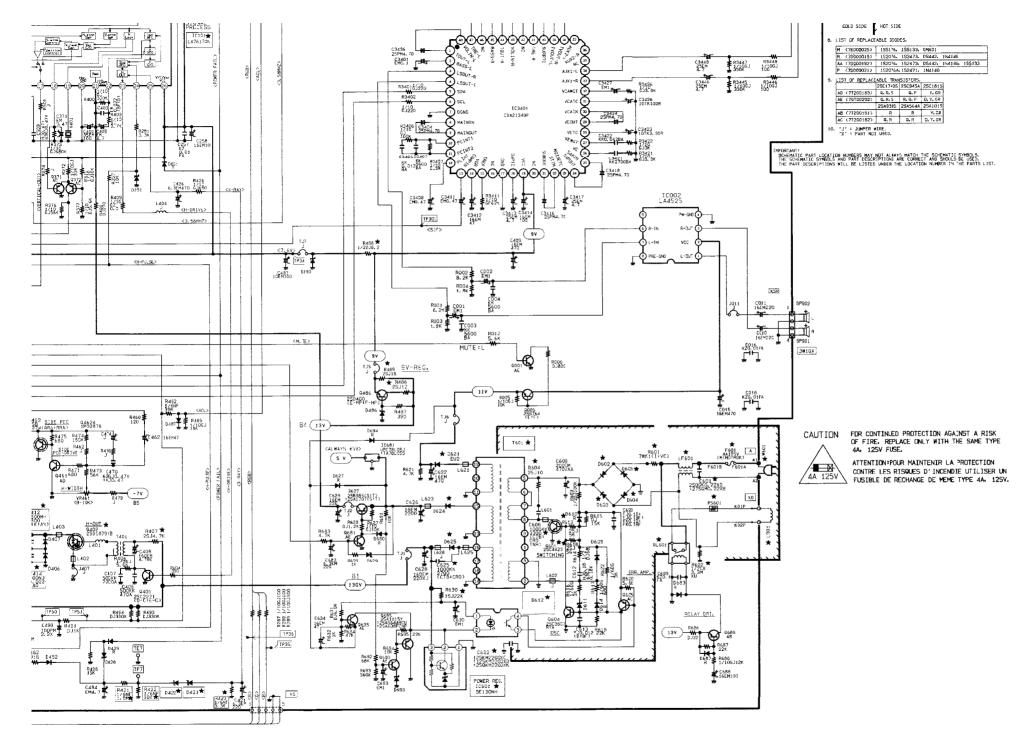
Device/Pin #	Volts	/Mode
Q627-B	POWER ON: 10.8	POWER OFF: 7.3
Q627-C	POWER ON: 11.4	POWER OFF: 0.1
Q627-E	11.6	POWER OFF: 7.3
Q635-B	POWER ON: 4.0	POWER OFF: 1.3
Q635-C	POWER ON: 30.5	POWER OFF: 9.3
Q635-E	4.0	POWER OFF: 1.3
Q681-B	0.7	POWER OFF: 0
Q681-C	0	POWER OFF: 7.3
Q681-E	GND	
Q688-B	11.4	POWER OFF: 0.1
Q688-C	0	POWER OFF: 0
Q688-E	11.4	POWER OFF: 0.1
Q693-B	0.5	POWER OFF: 6.2
Q693-C	POWER ON: 30.7	POWER OFF: 9.3
Q693-E	0.7	POWER OFF: 5.7
Q695-B	POWER ON: 30.7	POWER OFF: 9.0
Q695-C	GND	
Q695-E	POWER ON: 30.8	POWER OFF: 9.3
Q701-B	3.0	
Q701-C	147	
Ω701-Ε	2.6	
Q711-B	3.0	
Q711-C	144	
Ω711-E	2.8	
Q721-B	2.7	
Q721-C	143	
Q721-E Q831-B	2.6 4.3	
Q831-C	4.3	
Q831-E	4.9	
Q881-B	0	
Q881-C	4.7	
Q881-E	GND	
Q882-B	0	
Ω882-C	4.5	
Q882-E	GND	

Device/Pin #	Volts/Mode
Q1071-B	2.6
Q1071-C	9.1
Q1071-E	1,9









For parts or service contact
SANYO Fisher Service Corporation
21605 Plummer Street
Chatsworth, CA 91311 (U.S.A.)
300 Applewood Crescent,
Concord, Ontario L4K 5C7 (CANADA)

May / 2000 / 2170 SMC

Printed in U.S.A.

Notice

Category: __



CORRECTION	PRODUCTION CHANGE
SERVICE FLASH	ADD INFORMATION

COLOR TELEVISION

FILE NO. (- 2481

Please add this notice to the Service Manual listed below. REVISION 3

Date: NOVEMBER / 20 / 1999

Model: _____ DS31590

Effective from: Chassis No. 31590-02

Destination: U.S.A. REF: No. SM780055

NOTE: Match the Chassis No. on the unit's back cover with the Chassis No. in the Service Manual.

If the Service Manual Chassis No. does not match the unit's, additional Service Literature is required. This chassis is similar to Chassis No. 31590-00. Only the Difference Service Information is given in this manual. For detailed Service Information, refer to the Original Service Manual and Notices for Chassis No. 31590-00 used in Model D31590 (SM780055).

1. IN THE CHASSIS ELECTRICAL PARTS LIST

The reason for change.

A: Misprint B: Quality Reliability C: Standardization

D: Design E: Add as a possible sub F: Schematic location change

G: Purchasing Request

Page & Section	Schematic Location		Part No.	Description	Q'ty	Interchange- ability	Reason
	1.5.1.5	Old	403 082 9818	POLYPRO 0.33U J 200V	1	NO	D
Page 12, Chassis	*C417	New	403 078 9726 403 346 6822	MT-POLYPRO 0.2U J 200V MT-POLYPRO 0.2U J 250V	1	NO	
Electrical Parts List		Old	403 051 0607	ELECT 4.7U M 50V	1	NO	D
	C461	New	403 044 6609	ELECT 10 U M 25V	11	NO	
	2.00	Old	401 026 9303	CARBON 47 JA 1/6W	1	NO	D
	R460	New	401 024 9008	CARBON 120 JA 1/6W	1	NO	
Page 18, Chassis		Old	401 026 0607	CARBON 270 JA 1/6W	1	NO	D
Electrical Parts List	R461	New	401 025 7409	CARBON 220 JA 1/6W	1_	NO	
		Old	401 026 9600	CARBON 470 JA 1/6W	1	NO	D
	R506	New	401 027 5205	CARBON 680 JA 1/6W	1	NO	
		Old	401 026 9907	CARBON 4.7K JA 1/6W	1	NO	D
	R509	New	401 027 5502	CARBON 6.8K JA 1/6W	1	NO	

Parts list continued on back.

G7ECM, PRODUCT CODE 111341080

REFERENCE No. SM780055-03

1. IN THE CHASSIS ELECTRICAL PARTS LIST (Continued)

The reason for change.

A: Misprint

B: Quality Reliability C: Standardization

E: Add as a possible sub F: Schematic location change D: Design

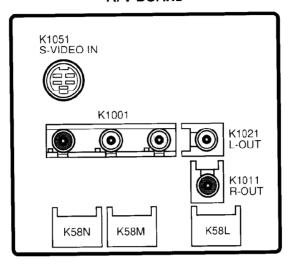
G: Purchasing Request

Page & Section	Schematic Location		Part No.	Description	Q'ty	Interchange- ability	Reason
	A100	Old	610 278 0888	ASSY, PWB, MAIN BRD	1	NO	_
Page 20, Chassis	,	New	610 283 5168	ASSY, PWB, MAIN BRD	1	NO	D
Electrical Parts List	★ Ω900	Old	414 009 5407 414 009 5704	CRT M78JUA068X78 CRT M78LKU30X12(W)	1	NO	
		New	414 010 6103	CRT M78JUA361X71	1	NO	D

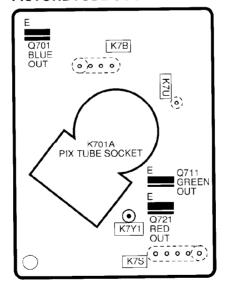
For parts or service contact

SANYO Fisher Service Corporation 21605 Plummer Street, Chatsworth, CA 91311

A/V BOARD



PICTURE TUBE SOCKET BOARD



Notice



CORRECTION	PRODUCTION CHANGE
SERVICE FLASH	ADD INFORMATION

FILE NO. 6 - 248 /

Please add this notice to the Service Manual listed below.

REVISION 2

 Category:
 COLORTELEVISION
 Date:
 SEPTEMBER / 20 / 1999

 Model:
 DS31590
 Effective from: Chassis No.
 31590-00

 Destination:
 U.S.A.
 REF: No.
 SM780055

NOTE: Match the Chassis No. on the unit's back cover with the Chassis No. in the Service Manual. If the Service Manual Chassis No. does not match the unit's, additional Service Literature is required. This chassis is similar to Chassis No. 31590-00. Only the Difference Service Information is given in this manual. For detailed Service Information, refer to the Original Service Manual and Notices for Chassis No. 31590-00 used in Model DS31590 (SM780055).

1. IN THE CHASSIS ELECTRICAL PARTS LIST

The reason for change.

A: Misprint B: Quality Reliability C: Standardization

D: Design E: Add as a possible sub F: Schematic location change

G: Purchasing Request

Page & Section	Schematic Location		Part No.	Description	Q'ty	Interchange- ability	Reason
	*C411	Old	404 069 6407 404 077 5003	MT-POLYPRO 8600P H 1.5K MT-POLYPRO 8600P H 1.5K	1	YES	E
	*(41)	New	404 069 6407 404 077 5003 403 343 8512	MT-POLYPRO 8600P H 1.5K MT-POLYPRO 8600P H 1.5K MT-POLYPRO 8600P H 1.5K	1	YES	
D = 10	★ C412	Old	404 068 6200 404 077 4709	MT-POLYPRO 8000P H 1.5K MT-POLYPRO 8000P H 1.5K	1	NO	D
Page 12, Chassis Electrical Parts List	*C412	New	404 068 6101 404 077 4600 403 083 4317	MT-POLYPRO 7800P H 1.5K MT-POLYPRO 7800P H 1.5K MT-POLYPRO 7800P H 1.5K	1	NO	
	10110	Old	403 083 4911	POLYPRO 0.027U J 400V	1	NO	D
	*C413	New	403 083 4317	POLYPRO 0.022U J 400V	1	NO	
	10440	Old	403 082 9016	POLYPRO 0.27U J 200V	1	YES]
	★C416	New	403 082 9016 403 346 7126	POLYPRO 0.27U J 200V MT-POLYPRO 0.27U J 250V	1	YES	
		Old	403 082 9818	POLYPRO 0.33U J 200V	1	NO	. D
	★ C417	New	403 082 8415 403 346 6921	POLYPRO 0.22U J 200V MT-POLYPRO 0.22U J 250V	1	NO	

1. IN THE CHASSIS ELECTRICAL PARTS LIST (Continued)

The reason for change.

A: Misprint B: Qua

B: Quality Reliability

C: Standardization

D: Design

E: Add as a possible sub

F: Schematic location change

G: Purchasing Request

Page & Section	Schematic Location		Part No.	Description	Q'ty	Interchange- ability	Reason
	C461	Old	403 051 0607	ELECT 4.7U M 50V	1	NO	
	0401	New	403 050 6600	ELECT 3.3U M 50V	1	NO	D
Page 12, Chassis	C462	Old	403 038 1603	ELECT 100U M 6.3V	1	NO	
Electrical Parts List	C402	New	403 043 9106	ELECT 47U M 16V	1	NO	D
	C503	Old	403 205 4703	ELECT 4.7U K 25V	1	NO	,
	0303	New	403 204 1802	ELECT 3.3U K 50V	1	NO	D
Page 13, Chassis Electrical	D428	Old	407 099 7109 407 054 5904	ZENER DIODE MTZJ15C ZENER DIODE RD15EB3	1	NO	-
Parts List	5420	New	407 099 7208 407 054 7007	ZENER DIODE MTZJ16A ZENER DIODE RD16EB1	1	NO	D
	R460	Old	401 026 9303	CARBON 47 JA 1/6W	1	NO	-
	11400	New	401 027 8107	CARBON 82 JA 1/6W	1	NO	D
	R461	Old	401 026 0607	CARBON 270 JA 1/6W	1	NO	D
	11401	New	401 026 3905	CARBON 330 JA 1/6W	1	NO	
!	R503	Old	401 027 5502	CARBON 6.8K JA 1/6W	1	NO	D
	11000	New	401 027 2600	CARBON 5.6K JA 1/6W	1	NO	
Page 18, Chassis	R504	Old	401 027 8602	CARBON 8.2K JA 1/6W	1	NO	D
Electrical Parts List	1.551	New	401 027 5502	CARBON 6.8K JA 1/6W	1	NO	
	R505	Old	401 006 8104	CARBON 1.2 JA 1/2W	1	NO	Б
		New	401 006 8401	CARBON 1.5 JA 1/2W	1	NO	D
	R507	Old	401 006 7602	CARBON 1 JA 1/2W	1	NO	
	11007	New	401 006 8807	CARBON 1.8 JA 1/2W	1	NO	D
	R508	Old	401 025 1902	CARBON 15K JA 1/6W	1	NO	
·	11000	New	401 024 9701	CARBON 12K JA 1/6W	1	NO	D.
	R509	Old	401 026 9907	CARBON 4.7K JA 1/6W	1	NO	-
Page 20, Chassis		New	401 027 8602	CARBON 8.2K JA 1/6W	1	NO	D
Electrical Parts List	★ Q900	Old	414 009 5407 414 009 5704	CRT M78JUA068X78 CRT M78LKU30X12(W)	1	Yes	
	2500	New	414 009 5407	CRT M78JUA068X78	1	Yes	D

For parts or service contact

SANYO Fisher Service Corporation 21605 Plummer Street, Chatsworth, CA 91311

Notice

Model: ____



CORRECTION	PRODUCTION CHANGE
SERVICE FLASH	ADD INFORMATION

DS31590

FILE NO. /

Please add this notice to the Service Manual listed below.

REVISION 1

MAY / 20 / 1999 Date: **COLOR TELEVISION** Category: __ 31590-01

SM780055 U.S.A. REF: No. Destination:

NOTE: Match the Chassis No. on the unit's back cover with the Chassis No. in the Service Manual. If the Service Manual Chassis No. does not match the unit's, additional Service Literature is required. This chassis is similar to Chassis No. 31590-00. Only the Difference Service Information is given in this manual. For detailed Service Information, refer to the Original Service Manual and Notices for Chassis No. 31590-00 used in Model D31590 (SM780055).

1. IN THE CHASSIS ELECTRICAL PARTS LIST

The reason for change.

B: Quality Reliability A: Misprint

C: Standardization

E: Add as a possible sub D: Design

F: Schematic location change

Effective from: Chassis No.__

G: Purchasing Request

Page & Section	Schematic Location		Part No.	Description	Q'ty	Interchange- ability	Reason
	1044	Old	404 069 6407 404 077 5003	MT-POLYPRO 8600P H 1.5K MT-POLYPRO 8600P H 1.5K	1	NO	D
	*C411	NEW	404 068 6101 404 077 4600	MT-POLYPRO 7800P H 1.5K MT-POLYPRO 7800P H 1.5K	1	NO	
	10110	Old	404 068 6200 404 077 4709	MT-POLYPRO 8000P H 1.5K MT-POLYPRO 8000P H 1.5K	1	NO	D
Page 12, Chassis Electrical	*C412	NEW	404 068 6101 404 077 4600	MT-POLYPRO 7800P H 1.5K MT-POLYPRO 7800P H 1.5K	1	NO	
Parts List		Old	403 083 4911	POLYPRO 0.027U J 400V	1	NO	D
	★C413	New	403 083 4317	POLYPRO 0.022U J 400V	1	NO	
	-	Old	403 082 9818	POLYPRO 0.33U J 200V	1	NO	D
	★C417	New	403 082 8019	POLYPRO 0.2U J 200V	0	NO	
		Old	403 051 0607	ELECT 4.7U M 50V	1	NO	D
	C461	New	403 049 9803	ELECT 2.2U M 50V	1	NO	
		Old	403 205 4703	ELECT 4.7U K 25V	1	NO	D
	C503	New	403 204 1802	ELECT 3.3U K 50V	1	NO	

1. IN THE CHASSIS ELECTRICAL PARTS LIST (Continued)

The reason for change.

A: Misprint B: Quality Reliability C: Standardization

D: Design E: Add as a possible sub F: Schematic location change

G: Purchasing Request

Page & Section	Schematic Location		Part No.	Description	Q'ty	Interchange- ability	Reason
Page 13, Chassis Electrical	D428	Old	407 099 7109 407 054 5904	ZENER DIODE MTZJ15C ZENER DIODE RD15EB3	1	NO	
Parts List		NEW	407 099 7208 407 054 7007	ZENER DIODE MTZJ16A ZENER DIODE RD16EB1	1	NO	D
	R460	Old	401 026 9303	CARBON 47 JA 1/6W	1	NO	
	11430	New	401 026 3905	CARBON 330 JA 1/6W	1	NO	D
	★R497	Old	401 057 9105	OXIDE MT 1.2 JA 1W	1	NO	_
		New	401 066 3002	OXIDE MT 2.2 JA 2W	1	NO	D
	R503	Old	401 027 5502	CARBON 6.8K JA 1/6W	1	NO	
	11303	New	401 027 2600	CARBON 5.6K JA 1/6W	1	NO	D
	R504	Old	401 027 8602	CARBON 8.2K JA 1/6W	1	NO	
	11004	New	401 024 7400	CARBON 10K JA 1/6W	1	NO	D
Page 18, Chassis	R505	Old	401 006 8104	CARBON 1.2 JA 1/2W	1	NO	D
Electrical Parts List	11303	New	401 006 8401	CARBON 1.5 JA 1/2W	1	NO	
7 4110 2101	R506	Old	401 027 5205	CARBON 680 JA 1/6W	1	NO	D
	11300	New	401 026 6609	CARBON 390 JA 1/6W	1	NO	
	R507	Old	401 006 7602	CARBON 1 JA 1/2W	1	NO	D
	11307	New	401 006 8807	CARBON 1.8 JA 1/2W	1	NO	
	R509	Old	401 026 9907	CARBON 4.7K JA 1/6W	1	NO	
	11303	New	401 024 7400	CARBON 10K JA 1/6W	1	NO	D
	R513	Old		NOT USED		NO	
	11313	New	401 007 1104	CARBON 1K JA 1/2W	1	NO	D
	A001	Old	610 278 0888	ASSY, PWB, MAIN BRD	1	NO	_
	Aoui	New	610 278 4602	ASSY, PWB, MAIN BRD	1	NO	D
Page 20, Chassis	*PS601	Old	408 038 5606	THERMISTER	1	NO	_
Electrical Parts List	71 3001	New	408 006 7304	THERMISTER	1	NO	D
	★ Q900	Old	414 009 5407 414 009 5704	CRT M78JUA068X78 CRT M78LKU30X12(W)	1	NO	
	AQ300	New	414 010 1900	CRT A79ECK262X54	1	NO	D

For parts or service contact

SANYO FISHER SERVICE 1411 West 190th Street, Suite 800, South Bay Corporate Center, Gardena, CA 90248